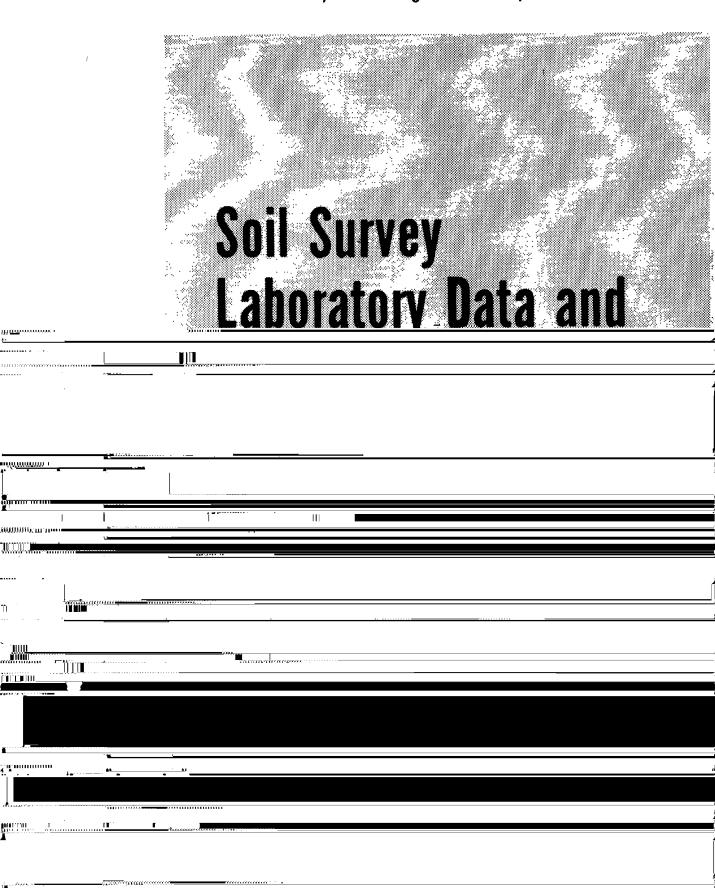
# Soil Survey Investigations Report No. 5



# Soil Survey Laboratory Data and Descriptions for Some Soils of...

# ... NEBRASKA

August 1966

SOIL CONSERVATION SERVICE · U.S. DEPARTMENT OF AGRICULTURE In cooperation with CONSERVATION AND SURVEY DIVISION · UNIVERSITY OF NEBRASKA

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### PREFACE

This publication is one in a new U.S. Department of Agriculture series established to preserve and make available technical information resulting from soil survey investigations. These investigations have been going on for about two decades. Data from them have been distributed in unpublished form to those immediately concerned. Some of the data and descriptions have appeared in technical journals, in regional bulletins, in USDA technical bulletins, and in the text of published soil surveys. But most were not available to all who might use them.

We intend to publish in this series all data from the soil survey laboratories that form reasonably complete characterizations of soils. Already-assembled data and descriptions will be published just as rapidly as they can be prepared for printing. Fragmentary data collected as reference points for specific soil surveys will not be included.

While these data were being assembled, there were many changes in laboratory methods. Some were improved and some new ones were devised. Consequently, laboratory data for different soils cannot always be directly compared without allowance for the method.

The method used is indicated by symbol in the column headings of the data table. These symbols are identified in the code sheet on the opposite page. Each method is described in the first number of this series, "Soil Survey Laboratory Methods and Procedures for Collecting Soil Samples," SSIR No. 1.

Ways of describing soils have also changed. Soil descriptions have become explicit on more and more features. The systems for designating horizons and for classifying soils have been changed.

The soil descriptions published here were prepared as working documents to meet a specific need of a soil survey at the time the soil samples were collected. The soil scientists who wrote them had no idea they would be published. Editing has been limited for the most part to that necessary for conformance to the "Soil Survey Manual." Field textural estimates have been retained, even though some are at variance with the laboratory data, because the field estimates themselves are important data.

There were several reasons for sampling these soils. Some were sampled to study soil genesis, some to facilitate classification, and some to obtain data to permit more useful interpretations. Those sampled for genesis or classification studies do not always fit neatly into our present concepts of soil series. Partly because of these studies, our concepts of some soil series have been modified. As a consequence, the soil series name assigned a soil at the time of sampling is not always the name that would be assigned today. Soil series names in this publication follow 1965 series definitions.

Soil Survey Soil Conservation Service

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Soil Series	County	Soil Survey No.	Page	Soil Series	County	Soil Survey No.	Page
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Anselmo	Custer	S60Nebr-21-1	.9	Mitchell	Scotts Bluff	S53Nebr-79-4	125
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	Cuming	S55Nebr-20-2	13	Monona	Washington	S57Nebr-89-3	129
	Madison	S54Nebr-60-1	15		Washington	<b>S57Nebr-89-10</b>	131
	Platte	S54Nebr-71-1	17	Moody	Dixon	S55Nebr-26-1	133
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01 000	Fillmore	S55Nebr-30-1	37	**-**	Kimball	S57Nebr-53-2	153
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	Deuel	S58Nebr-25-2	55		Washington	S57Nebr-89-4	171
Hall	Hall	S51Nebr-40-11	57		Washington	S57Nebr-89-6	173
	Hall	S52Nebr-40-2	59 61		Washington	S57Nebr-89-7	175
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	Adams	S61Nebr-1-1	63		Buffalo	S52Nebr-10-2	179
	Clay	S54Nebr-18-1	65 67		Hall	S51Nebr-40-9	181
	Clay	S5hNebr-18-2	60	Thurman	Antelope	S60Nebr-2-1	183 185
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Hord	Buffalo Hall	S51Nebr-40-12	79		Scotts Bluff	353Nebr-79-6	195
	Hall	S52Nebr-40-4	81		Scotts Bluff	S53Nebr-79-7	197
	Hall	S52Nebr-40-5	83	Ulysses	Scotts Bluff	S53Nebr-79-1	199
Keith	Deuel	358Nebr-25-5	85	Valentine	Arthur	S54Nebr-3-2	201
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	Scotts Bluff	S53Nebr-79-5	103	Wood River	Hall	S50Nebr-40-2	219
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Leshara	Dodge	S53Nebr-27-4	107		Hall	S51Nebr-40-8	223
	Hall	S53Nebr-40-4	109		Hall	S51Nebr-40-10	225
	Merrick	S53Nebr-61-1	111	wymore	Lancaster	S60Nebr-55-1	227
•	Saunders	S53Nebr-78-3	113		Lancaster	S61Nebr-55-1	229 231
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<sup>\*</sup>Soil series names preceded by an asterisk are names of tentative series.

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Matting	County	Soil Series	Soil Survey No.	Page	County	Soil Series	Soil Survey No.	Page
Antelope	Adams	Hastings	S59Nebr-1-1	61	Kimball	Canyon	S57Nebr-53-8	29
Arthur		Hastings	S61Nebr-1-1	63		Canyon	S57Nebr-53-9	31.
Arthur   Valentine   SSiMebr-10-2   201   Reith   SSYMebr-3-1-3-1   95	Antelope	Thurman	S60Nebr-2-1	183		Keith	S57Nebr-53-3	93
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Sharpsturg   Silwier_10-1   203	Cass							
Cherry   Valentine   SSLNebr-16-1   203   Lancaster   Rosebud   SSTNebr-53-1   272   273   274   274   275	<b>QQQD</b>							
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Crete   S60Nebr-18-1   35	Olivitay				Lancaster			
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Coshen   S58Nebr-25-2   55   Pholps   Holdrege   S5Nebr-67-7   233   73   14   15   15   15   15   15   15   15				49				
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Moody   S59Nebr-26-1   135   Saline   Crete   S55Nebr-76-1   143     Nora   S59Nebr-26-2   143   Saunders   Burchard   S58Nebr-78-1   25     Thurman   S59Nebr-26-1   185   Saunders   Burchard   S58Nebr-78-1   25     Thurman   S59Nebr-26-1   185   Saunders   Burchard   S58Nebr-78-5   27     Thurman   S59Nebr-26-5   187   Cass   S53Nebr-78-1   33     Dodge   Lamoure   S53Nebr-27-3   105   Leshara   S53Nebr-78-1   139     Leshara   S53Nebr-27-1   107   Morrill   S58Nebr-78-1   139     Dundy   Bridgeport   S57Nebr-29-1   19   Morrill   S58Nebr-78-1   141     Bridgeport   S57Nebr-29-2   21   Sharpsburg   S58Nebr-78-3   167     Bridgeport   S57Nebr-29-2   21   Sharpsburg   S58Nebr-78-3   167     Fillmore   Crete   S55Nebr-30-1   37   Volin   S53Nebr-78-2   207     Crete   S55Nebr-30-2   39   Scotts Bluff   *Keota   S53Nebr-78-3   103     Hall   Exline   S51Nebr-40-11   57   Mitchell   S53Nebr-79-3   103     Hall   S51Nebr-40-12   59   Mitchell   S53Nebr-79-1   125     Hord   S52Nebr-40-1   81   Tripp   S61Nebr-79-1   191     Hord   S52Nebr-40-1   81   Tripp   S61Nebr-79-1   191     Hord   S52Nebr-40-1   109   Tripp   S53Nebr-79-1   197     Leshara   S53Nebr-40-3   213   Washington   Luton   S57Nebr-89-2   117     Wann   S53Nebr-40-2   219   Marshall   S57Nebr-89-2   117     Wann   S53Nebr-40-6   217   Marshall   S57Nebr-89-3   129     Wood River   S51Nebr-40-10   225   Sharpsburg   S57Nebr-89-1   121     Hamilton   Kenesaw   S51Nebr-40-10   225   Sharpsburg   S57Nebr-89-1   173     Hamilton   Kenesaw   S51Nebr-40-10   225   Sharpsburg   S57Nebr-89-1   174     Hamilton   Kenesaw   S51Nebr-40-10   225   Sharpsburg   S57Nebr-89-1   175     Keith   S51Nebr-40-1   29   Sharpsburg   S57Nebr-89-1   175     K		Moody	S55Nebr-26-1	133	Platte	Relfore	S54Nebr-71-1	17
Nora		Moody	S59Nebr-26-1	135	Saline	Crete	S55Nebr-76-1	
Nova   S5Nebr-26-2   145   Saunders   Burchard   S5Nebr-78-1   25   27   27   28   28   28   28   28   28		Nora	S59Nebr-26-2	143		Crete	S55Nebr-76-2	
Thurman   S59Nebr-26-b   185		Nora			Saunders	Burchard		
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Leshara   S53Nebr-27-4   107	Dodge							
Dundy   Bridgeport   S57Nebr-29-1   19	Dougo							
Bridgeport   S57Nebr-29-2   21   Sharpsburg   S58Nebr-78-3   167	Dundy							
Bridgeport   S57Nebr-29-4   23   Sharpsburg   S58Nebr-78-6   169	Dunay							
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Wann   S53Nebr-40-2   215   Marshall   S57Nebr-89-5   119				181	Washington	Luton	S57Nebr-89-1	115
Wann   S53Nebr-40-6   217   Marshall   S57Nebr-89-8   121				213		Luton	S57Nebr-89-2	117
Wann   S53Nebr-40-6   217   Marshall   S57Nebr-89-8   121				215		Marshall	S57Nebr-89 <b>-</b> 5	
Wood River   S50Nebr-40-6   221   Marshall   S57Nebr-89-9   123     Wood River   S51Nebr-40-6   221   Monona   S57Nebr-89-3   129     Wood River   S51Nebr-40-8   223   Monona   S57Nebr-89-10   131   Wood River   S51Nebr-40-10   225   Sharpsburg   S57Nebr-89-4   171   Ramilton   Kenesaw   S54Nebr-41-1   99   Sharpsburg   S57Nebr-89-6   173   Ritchcock   Keith   S54Nebr-44-2   89   Sharpsburg   S57Nebr-89-7   175   Reith   S54Nebr-44-3   91   Wayne   Moody   S54Nebr-90-2   137   Rimball   Altvan   S57Nebr-53-11   5   York   Hastings   S5Nebr-93-1   69   Reith   S54Nebr-53-11   69   Reith   S54Nebr-93-1   69   Reith   S54Nebr-83-1   69   Reith   Reith				217		Marshall	S57Nebr-89-8	
Wood River   S51Nebr-40-6   221   Monona   S57Nebr-89-3   129		Wood River	S50Nebr-40-2					
Wood River   S51Nebr-40-8   223   Monona   S57Nebr-89-10   131		Wood River						
Wood River   S51Nebr-40-10   225   Sharpsburg   S57Nebr-89-4   171		Wood River	S51Nebr-40-8					
Hamilton         Kenesaw         S54Nebr-41-1         99         Sharpsburg         S57Nebr-89-6         173           Hitchcock         Keith         S54Nebr-44-2         89         Sharpsburg         S57Nebr-89-7         175           Keith         S54Nebr-44-3         91         Wayne         Moody         S54Nebr-90-2         137           Kimball         Altran         S57Nebr-53-11         5         York         Hastings         S54Nebr-93-1         69		Wood River						
Hitchcock Keith S54Nebr-44-2 89 Sharpsburg S57Nebr-89-7 175 Keith S54Nebr-44-3 91 Wayne Moody S54Nebr-90-2 137 Kimball Altvan S57Nebr-53-11 5 York Hastings S54Nebr-93-1 69	Hamilton							
Keith         S5LNebr-LLI-3         91         Wayne         Moody         S5LNebr-90-2         137           Kimball         Altvan         S57Nebr-53-Ll         5         York         Hastings         S5LNebr-93-1         69	Hitchcock							
Kimball Altvan S57Nebr-53-11 5 York Hastings S5hNebr-93-1 69					Wavne			
Altvan S57Nebr-53-12 7 Hastings S5Nebr-93-2 71	Kimball			´ξ				
				7		Hastings	S54Nebr-93-2	71

<sup>\*</sup>Soil series names preceded by an asterisk are names of tentative series.

SOIL TYPE Adair LOCATION

Pawnee County, Nebraska

silty clay loam

SOIL NOS.

\$58Nebr-67-5 (\$58(62)Nebr-67-5)

LAB. NOS. 9162-9168 (17437-17444)

1	<del>#1017741</del> 6747	178144144444444444444444444444444444444	1.B1b		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pt	r cent)	Al		14477114 pozasti tarrete. 1
and a feel for the feel	DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	
ı		*****	2-1	1-0.5	0.5-0.25	0, 25-0, 10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	0.02-0.002	( <u>, 1</u> 9mm)	
[	0-5	Alp	0.6a	3.5a	6.4a	8.6a	5.2a	47.3	28.4	39.5	17.0	Tr.	
ļ	5-10	B21	0.5a	3.0a	3.4a	4.2a	2.6a	38.9	147.4	26.6	17.2	Tr.	
Ì	10-19	B22	0.6a	2.4a	3.2a	4.0a	3.la	40.3	46.4	26.9	18.4	Tr.	
	19-28	<b>B</b> 23	0.6a	2.2a	3.la	3.9a	3.7a	43.2	43.3	29.1	19.7	Tr.	
į	28-37	Borr	Ť	1	2.8b	4.6b	4.2b	<u>и́4.2</u>	40.6	30.8	19.7	The.	

Soil type: Adair silty clay loam

\$58Nebr-67-5 and \$58(62)Nebr-67-5 (revised) Soil No.:

Classification: Brunizem

Location: 170 feet south and 200 feet west of NE corner Sec. 29, TlN, RllE, about 2 miles west and 5 miles south

of Pawnee City, Pawnee County, Nebraska.

Date sampled: September 15, 1958. Collectors: J. S. Allen and J. A. Elder.

Use: Cultivated (alfalfa and brome).

Climate: Average annual precipitation 31 inches. Average annual temperature 53° F.

Physiography: Rolling glacial upland.

Slope: 4 percent southwest.

Lincoln Horizon

Iab.No. 9162 0-5 inches. Dark grayish brown (10YR 4/2 dry) to very dark brown (10YR 2/2 moist) silty clay loam; Alp moderate fine granular structure; slightly hard dry, friable moist; noncalcareous; abrupt smooth (17437)

Parent material: Glacial till.

lower houndary.

9163 5-10 inches. Dark reddish brown (5YR 3/3 dry) to dark brown (7.5YR 3/2 moist) silty clay; with B21 common fine distinct reddish brown mottles; moderate fine blocky structure, continuous clay films on the aggregates; slightly hard dry, friable moist; noncalcareous; clear smooth lower boundary. (17438)

9164 10-19 inches. Reddish brown (5YR 4/3 dry) to dark reddish brown (5YR 3/2 moist) clay with common B22 fine distinct reddish brown mottles; moderate coarse prismatic primary to strong medium and fine (17439) blocky secondary structure; continuous clay films on the aggregates; plastic wet, firm moist,

hard dry; noncalcareous; clear smooth lower boundary.

9165 R23 19-28 inches. Reddish brown (5YR 4/4 dry) to dark reddish brown (5YR 3/3 moist) clay; common fine (17440) distinct dark reddish brown and dark brown mottles; moderate coarse prismatic primary to strong medium blocky secondary structure; continuous clay films and aggregates coated with dark material from above; plastic wet, very firm moist, hard dry; noncalcareous; gradual smooth lower boundary.

28-37 inches. Yellowish red (5YR 5/6 dry) to dark reddish brown (5YR 3/4 moist) clay; moderate 9166 B24 (17441)coarse prismatic primary to strong medium blocky secondary structure, continuous clay films on aggregates; plastic wet, very firm moist, hard dry; the soil matrix is noncalcareous with a few small lime concretions; clear smooth lower boundary.

9167 B31 37-48 inches. Mottled strong brown (7.5YR 5/8 dry) to 75 percent dark brown (7.5YR 4/4 moist) and 25 percent dark reddish brown (5YR 3/4 moist) clay; moderate medium and coarse prismatic primary to (17442)strong medium blocky secondary structure; thin continuous clay films on aggregates; plastic wet, very firm moist, hard dry; the soil is noncalcareous but a few small hard lime concretions are

present; gradual smooth lower boundary.

48-60 inches. Reddish yellow (7.5YR 6/6 dry) to dark brown (7.5YR 4/4 moist) clay; strong medium 9168 **B32** prismatic primary to strong medium blocky secondary structure; thin continuous clay films on (17443)aggregates; plastic wet, firm moist, hard dry; common medium and fine dark brown iron and manganese concretions present. A few small lime concretions present, although the soil matrix is noncal-

careous.

60-72 inches. Yellowish brown (10YR 5/6) clay loam with a few medium distinct light brownish gray mottles, and with prominent, patchy brown (7.5YR 5/4) illuviation cutans on planar surfaces B33 (17444) and on pore walls; weak very coarse prismatic with prisms massive; firm; ruptures semiplastically at sampling moisture; slightly sticky and plastic; patches of black MnO<sub>2</sub>(?) as coatings in a crude dendritic pattern on planar surfaces and as fairly complete coatings on the walls of some pores; black coatings appear to coat or interpenetrate with the illuvial clay cutans; occasional pocket and stringer of moved clay 1/8-inch thick; some of the thicker bodies of moved clay are very dark grayish brown.

Remarks: The pit was reopened in 1962 by George Holmgren, John Millet, Jim Drew and Robert Grossman. The sampling was extended downward 12 inches. Samples were taken for moisture retention, bulk density, and for mineralogical studies. The latter are to be done by John Millet as part of his Master of Science thesis project. The laboratory numbers in parentheses are for the 1962 samples.

SOIL TYPE Altvan LOCATION Kimball County, Nebraska loam, deep

SOIL NOS. <u>\$57Nebr-53-11-(1-9)</u> LAB. NOS. <u>5855-5863</u>

		i Bla	<del> </del>	PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (po	r cent)	3 <b>A</b> 1		
DEPTH INCHES	HORIZON	VEDY	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURAL CLASS
	ļ	2.1	1-0.5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	002-0002	(<19=	)
0-6	Alp	8.3	12.1	6.5	8.1	14.8	33.4	16.8	33.4	13.7	8	1
6-8	: - :	10.0	11.2	5.8	7.7	14.5	33.4	17.4	38.5	13.2	7	1
8-11	BL	8.4	10.0	5.1	6.4	11.8	33.7	24.6	35.2	13.4	7	1
11-17	R21	5.4a	8.1a		5.5a	12.3a		27.3	37.0	14.9	3	cl cl
17-21	B22	3.6a	5.28	-	4.4a	16.la		25.1	44.8	16.4	3	1
21-27	Bca	4.Oa.	5.5a		6.3a	19.4a	39.6	21.4	47.0	15.8	3	1
27-32	Cl	7.6b	10.44	7.0a	11.la	22.4a		15.1	46.2	9.6	. 6	fsl
32-36	DI.	9.80	15.46	10.4a	14.4a	17.5a	18.1	14.4	36.5	7.3	15	cosl/s
36-41		40.4b		7.5a		1.4a	2.5	15.0	3.8	1.9	50	cosl
				<b>Anti-month</b>								-
	PH			NIC MA	TTER	842	CAL	6E.a	•	MOIST	TURE TE	
8000	800a	8Cla	6Ala	6Bla	l	EST% SALT	CONDUC-	CoCO <sub>3</sub>	GYPSUM	•		4182
SATU- RATED PASTE	1;5	1:10	ORGANIC CARBON	NITRO- GEN	C/N	(BUPEAU CUP)	EC = 103	equiv-	me./100g. SOIL		1/3 ATMOS.	15 ATMOS.
PASIE	113	1:10	CARBON	924	0"	CC	MILLIMHOS PER CM BALB	į	, ,,,,		5	5
<u></u>			1.22	.100	11.3	<0.20	0.8	****	<b> </b>	i <b>5.</b>	j <b>?</b>	7.8
6.7	6.8	7.3	1.42	.108	13.1	<0.20	0.9	<b>.</b> -	ĺ	i	1	8.4
5.7	6.9	7.4		.063		<0.20	0.7		į	:	l	11.0
ó.9	7.3	7.8	0.58 0.52	.059	9.2 8.8	<0.20	0.7	<u> </u>		:	1	12.1
7.0	7.5	7.9			8.5	<0.20	0.7	_	i i		ļ	12.2
7.4	7.8	8.6	0.66	.078 .068	8.7	<0.20		-	:		Į	11.4
7.6	8.1	8.8	0.59	.000	0.1	<0.20	0.7 0.8	<b>9</b> 8	i	:	į	7.7
7.7	8.3	9.1	0.30		1	<0.20	0.8	i	į		1	6.5
7.8	8.4	9.2	0.25		•	<0.20	0.8	5			ļ	6.2
7.9	8.5	9.3	0.12		•	W.20	0.0			1		0.2
SAla		EXTRAC	TABLE	CATIONS	55Bla	5102	:8Al 84	T. EXI	SOL.	)) <del></del>	4A3a	. 8A
	* * * * * * * * * * * * * * * * * * *	602b	6Hla		602a		6Pla	691a	<u> </u>	i	1	MOISTURE
CATION EXCHANGE CAPACITY		1						1	i	1	Vol.	SATUL
NH) Ac	Co	Me	H	No	K	EXCH.	No	K	•	•	Wt.	RATION
+ 1114111	<del>  -</del>	millioqui	relents per	100g. soi	1	• •	<del>&lt;</del>	_ millioqu	ivolenta p	er liter 🛶	E/99.	
14.9	10.1	2.3	3.5		1.8	-	0.3	1.7	į			37.3
15.3	11.0		2.3	-	1.8	-	6.3	1.7	•			35.4
18.3	13.1	3.3	2.0	-	1.7	-	0.3	1.0	Ī			42.7
20.6	14.6	4.4	2.0	-	1.7	-	0.2	0.9	į	İ	1.45	49.4
24.6	1	İ	Ì	-	1.9	-	0.3	0.8			ļ	50.9
18.9		Ĭ		-	1.6	-	0.2	0.9			1.27	46.9
14.2	1	•	İ	-	1.7	l -	0.5	1.2	į	İ	1.54	32.4
11.8	1			0.1	1.6	1	0.6	1.4	i			29.1
11.0		i		0.2	1.5	2	1.6	1.4	į	1		23.8
				: ! !								•
	]				/=	1	<u> </u>					
1	Few i	rregul	er blac	k con	gr. (F	Mm \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	fer. C	dco - ~	dno-	1		‡ ‡
þ.	Few i	fregul	ar bia	k con	er.(re	Mn)Also	TEW, C	acus e	duct.	1	i	I
1	ļ			ļ	j	İ		İ	1	Ī	!	
	1	I	i	İ	1	1		1	l	i	į	İ
7	i	Ī	T	:	ī	:	:	1	•	•	7	•

Soil type: Altvan loam, deep

Location: Kimball County, Nebraska. 300 feet north and 65 feet west of SE corner Sec. 30, TL6N, R57W. About 6

miles north of Bushnell, Nebraska.

Topography: About a 1 percent south facing slope on a loess-covered gravel Tertiary plain. Gravels assumed to be of Pleistocene age.

Cultivation: Fallow, 1957.
Described by: Ross D. Greenawalt and Bill McKinzie.

Soil No.: S57Nebr-53-11-(1-9)

Lincoln Tob Wo

TEMP - MO -		
COCC	Alp	0-6 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) loam; weak
5855	ALD	0-0 inches. Grayian brown (101k 5/2 dry) to very dark grayian brown (101k 3/2 moist) idem: weak
		fine granular; very friable, moist; abrupt smooth lower boundary.
		man- Granton, toll prompted mornel morner route posturell.

5856 A12 6-8 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) loam; weak coarse subangular blocky structure; very friable, moist; abrupt smooth lower boundary.

5857 ы 8-11 inches. Brown (10YR 5/3 dry) to dark brown (10YR 3/3 moist) loam; weak coarse subangular blocky; friable, moist; clear smooth lower boundary.

11-17 inches. Brown (10YR 5/3 dry) to dark brown (10YR 3/3 moist) clay loam; compound weak coarse prismatic and moderate fine and medium subangular blocky structure; firm, moist; clear smooth 5858 B21 lower boundary: broken clay skins on vertical and horizontal faces.

5859 B22 17-21 inches. Pale brown (10YR 6/3 dry) to dark brown (10YR 4/3 moist) heavy silt loam; compound weak coarse prismatic and moderate fine and medium subangular blocky structure; friable, moist; clear smooth lower boundary.

21-27 inches. Very rale brown (10YR 7/3 dry) to pale brown (10YR 6/3 moist) silt loam; compound weak coarse prismatic and weak medium subangular blocky structure; very friable, moist; violent 5860 Bea effervescence; disseminated lime occurring along structural faces and along root channels; few scattered gravels present; clear smooth lower boundary.

27-32 inches. Very pale brown (10YR 7/3 dry) to brown (10YR 5/3 moist) heavy fine sandy loam; massive structure; very friable, moist; violent effervescence; gradual smooth lower boundary; fine 5861 Cl and coarse gravel mixed through horizon; a 2-inch Krotovina present, filled with dark colored surface material.

5862 m 32-36 inches. Very pale brown (10YR 7/3 dry) to yellowish brown (10YR 5/4 moist) gravelly sandy loam; massive structure; very friable, moist.

5863 TO 36-41 inches. Pleistocene sand and gravel (5YR 6/4 moist) matrix; sticky uniform coarse sand.

Note: Numerous fine and coarse gravels present on the surface and throughout the profile. Horizons Alp, B21, and Cl were sampled for the Eureau of Public Roads.

SOIL TYPE Altvan LOCATION Kimball County, Nebraska loam, deep

SOIL NOS. <u>\$57Nebr-53-12-(1-9)</u> LAB. NOS. <u>5864-5872</u>

		1Bla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent)	3AJ		<del> </del>
DEPTH	HORIZON	VERY	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURAL CLASS
		2-1	1-0.5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.007	< 0.002	0, 2-0.02	003-000\$	<19mm)	L
0-6	Alp	16.6	13.8	5.4a	4.4a	11.4a	34.1	14.3	33.4	14.4	12	1.
<b>6-</b> 8	Al2	12.1	14.38	5.3a	4.9a	9.9a		18.1	32.3	14.5	11	1
8-12	Bl	4.2	10.58	5.6a	5.9a	12.6a	38.7	22.5	38.3	15.6	6	1
12-18	B21	6.6		2.2a		10.3a	_	31.4	36.3	16.6	3	cl
18-23		2.3	- 1	l.la	1.6a	15.3a	50.6	26.7	47.0	19.9	2	sil
23-26	Bça	0.75			1.9a	17.6a		20.0	51.1	24.3	1	sil
26-32	CJ	2.7			3.la	17.8a		21.7	45.9	20.9	5	1
32-35	D1.	24.48			7.5a	7.9a	17.2	14.9	20.5	7.3	23	cosl
35-40	D2	42.20	36.4	9.8a	4.4a	0.9a	1.5	4.8	2.4	1.0	21	cos
	ρH		090	NIC MA	TTFE	842	ELECTRI-	 6ЕЗа	1001100.00	MOIST	URE TE	NSIONS
8сть і	8сіл і	8Cla		6Bla		EST%	CAL CONDUC-	0			Fiv	4782
SATU- RATED			ORGANIC			SALT (BUREAU	TIVITY EC×103	CeCO <sub>2</sub>	GYPSUM	1/10	1/3	15
PASTE	1:5		CARBON		C/N	CUPY	MILLIMHOS	alent	SOIL	ATMOS.	ATMOS.	ATMOS.
			*				PER CM BALB	*		*	%	3
6.5	6.6	7.2	1.12	094	11.9	<0.20	ს.5	_				7.2
6.4	6.7	7.2	0.77	-074	10.4		0.6	-				8.2
6.6	7.0	7.4	0.52	.055	9.4	<0.20	0.6	-				9.9
6.7	7.1	7.8	0.56	.062	9.0	<0.20	0.5	7	<del>,</del>	`		13.8
7.2	7.7	8.4	0.58	.073		10.00	0.7	5				13.4
7.7	8.3	9.1	0.61	.075	8.1		0.7	7				, 13.3
7.8	8.5	9.2	0.37			<0.20	0.7	14				12.3
7.9	8.5	9.3	0.22			<0.20	0.8	15				7.1
3.1	8.7	9.4	0.02			<0.20	0.8	1				2.5
******	*********			**********			Marian	(*************************************				
5Ala		EXTRAC	TABLE (	CATIONS	DELB :	5 <b>D</b> 2	SAL S	AT EX	T. SOI	i.	4A3a	: 8a

ŋſ Topography: About a 1 percent slope on a losss-covered gravel Tertiary plain. Gravels assumed to be of Pleistocene Fallow, 1957. Cultivation: Ross D. Greenawalt and Rill McKinzie. Described by: Soil No .: 857Nebr-53-12-(1-9) Lincoln Lab. No. Horizon 0-6 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) loam; weak 5864 Alp fine granular; very friable, moist; abrupt smooth lower boundary. 6-8 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) loam; weak coarse subangular blocky structure; very friable, moist; abrupt smooth lower boundary. 5865 A12 8-12 inches. Brown (10YR 5/3 dry) to dark brown (10YR 3/3 moist) heavy loam; weak coarse subangular blocky structure; friable, moist; clear smooth lower boundary. 5866 Bl

5869 Bca 23-26 inches. Very pale brown (10YR 7/3 dry) to pale brown (10YR 6/3 moist) silt loam; weak

lower boundary; broken clay skins present on vertical and horizontal faces.

5867

5868

B21

**B22** 

abrupt smooth lower boundary.

12-18 inches. Brown (10YR 5/3 dry) to dark brown (10YR 3/3 moist) silty clay loam; compound weak coarse prismatic and moderate fine and medium subangular blocky structure; firm, moist; clear smooth

18-23 inches. Pale brown (10YR 6/3 moist) to brown (10YR 5/3 moist) heavy silt loam; compound weak coarse prismatic and moderate fine and medium subangular blocky structure; friable, moist;

SOIL MOSS. SOIL NOS. SONEDY-21-1 LOCATION CARRET COUNTY, Nebraska

SOIL SURVEY LABORATORY Lincoln, Nebrasks LAB. Nos. 13461-13466 December 1964

	1	<u> 18</u> 1a						Size clas	s and parti	cle diamete	er (mm) 3/	ÚI.						
	· ·		Total	1				Sand		Şı							se fragmer	nts
Depth	Horizon	Sand	Şıtt	Clay	Very	Coarse	Medium	Fine	Very fine		Int III	Int. II				2A2	2A2 2 - 19	19-
(In.)	'	(2-0.05)	(0 05-	( < 0.002)	coarse (2-1)		(0 5-0 25)	(0.25-0.1)		0.05-0.02	(0 02-	(0 2-0.02)	(2-0 1)				I	
-			0 002)	<u> </u>	(2-1)		  . of =< 2	l I	l	I	0 002)	ı				Pct.	<del></del>	t of _ 6mm
0-6	Alp	80.8	13.6	5.6		1.7	8.0	41.6	29.5	11.0	2.6	66.3	51.3			_	-	
6-11	A)2	63.7	25.2	11.1	-	0.7	4.6	28.7	29.7	22.1	3.1	69.8	34.0			-	-	
11-22	AC	68.1	22.5	9.4	-	0.2	1.9	30.7	35-3	19.7	2.8	77.1	32.8				ļ <del>-</del> .	
22-38	ET.	68.0	22.5 7.8	9.5 5.6	-	0.2	0.8	28.3	38.7	19.3	3.2	80.6	29·3 50·7			-	-	
38-50 50-60	C2 C3	86.6 74.1	18.3	7.6	-	0.6	4.8 5.5	45.3 40.3	35.9 27.7	15.9	0.4	75.0 70.0	46.4			_	[	
,															·			
	[ 6Ala	6Bla	<u> </u> 	<u> </u>	6Ele	6Cla		Bulk densit	y	<u> </u>		/ater conte					рН	
Depth	Organic	Nitrogen	C/N		Çarbonate	Ext.	4Als				4B4		432					8c.
(in.)	carbon	•	1		as CaCO <sub>3</sub>	Iron	Field-				Field-	1/10- Bar	15-					(1.
						Fe <sub>2</sub> O <sub>3</sub>	State					Pieces						H <sub>2</sub>
	Pct.	Pct			Pct	Pct.	g/cc	g/cc	g/cc		Pct	Pct	Pct.					_5
0-6	0.44	0.041	11	1		0.2	T						2.8					6.
6-11	0.37	0.043				0.3	1.51				17.4	23.0	5.2					6.
11-22	0.16	0.024	L	<b>↓</b>		0.3	1.15		↓—	-		A3 C	4.6				<del>  -</del>	6.
22-38 38 50	0.12	0.015			-	0.2	1.47				11.2	21.9	4.8					7. 8.
38-50 50-60	0.06				tr.	0.2							2.3 3.6					8.
							<u> </u>											
	6 <b>R2</b> b	Extractat  602b	ole bases 5	 	 	6нца	Cat.Ex 5A3a	ch.Can							803		Base sat	uratio
Depth	"		0,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Ext.	Sum	-									Sum	
(in.)	Ca	Mg	Na	K	Sum	Acid-	Cat-	NH <sub>14</sub> OAc	:						Ca/Mg		Cat-	NEL (
		l	l	l		ity	lions	_									ions Pct.	Po
	I _	•			meq/100 p	-		1 - 1		+								10
0-6	h o	I n a	te	106	5.7	1 3.2	1 6.9	1 2.4									1 01	
0-6 6-11	4.2 6.8	0.9	tr.	0.6	5.7 9.1	1.2	6.9	9.3							3.8		83 82	9
0-6 6-11 11-22	6.8	1.8	tr. tr.	0.6 0.5 0.3	9.1	1.2 2.0 1.2	6.9 11.1 9.3	9.3 8.2							3.3		82 87	9
6-11 11-22 22-36		0.9 1.8 1.8 2.1	tr. tr.	0.5 0.3 0.5		2.0	11.1	9.3 8.2 8.7						<u> </u>	3.8 3.3 3.4		82	9
6-11 11-22 22-36 38-50	6.8	1.8	tr. tr. tr.	0.5 0.3 0.5 0.3	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	9
6-11	6.8	1.8	tr. tr.	0.5 0.3 0.5	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7							3.3		82 87	9
6-11 11-22 22-36 38-50	6.8	1.8 1.8 2.1	tr. tr. tr. tr.	0.5 0.3 0.5 0.3	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	9
6-11 11-22 22-38 38-50 50-60	6.8 6.0 7.1	1.8 1.8 2.1	tr. tr. tr. tr.	0.5 0.3 0.5 0.3	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	3
6-11 11-22 22-38 38-50 50-60 Dopth (in.)	Ratios	1.8 1.8 2.1	tr. tr. tr. tr. tr. tr. Var.	0.5 0.3 0.5 0.3 0.5	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	3
6-11 11-22 22-38 38-50 50-60 Dopth (In.)	Ratios	1.8 1.8 2.1	tr. tr. tr. tr. tr. tr. tr. var.	0.5 0.3 0.5 0.3 0.5	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	9
6-11 11-22 22-38 38-50 50-60 Depth (ln.)	6.8 6.0 7.1 Ratios	1.8 1.8 2.1	tr. tr. tr. tr. tr.	0.5 0.3 0.5 0.3 0.5	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	9
6-11 11-22 22-38 38-50 50-60 Dopth (ln.)	Ratios  Ratios  NEL, OAc CEC  0.96 0.87	1.8 1.8 2.1	tr. tr. tr. tr. tr. Var.	0.5 0.3 0.5 0.3 0.5	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	3
6-11 11-22 22-38 38-50 50-60 Dopth (in.)	6.8 6.0 7.1 RBh,OAc CSC 0.96 0.84 0.87 0.92	1.8 1.8 2.1	tr. tr. tr. tr. tr.	0.5 0.3 0.5 0.3 0.5	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	3
6-11 11-22 22-38 38-50 50-60 Dopth (ln.)	6.8 6.0 7.1 Ratios	1.8 1.8 2.1	tr. tr. tr. tr. tr.	0.5 0.3 0.5 0.3 0.5	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	3
6-11 11-22 22-38 38-50 50-60 Dopth (In.) 0-6 6-11 11-22 38-50 38-50	6.8 6.0 7.1 RBh,OAc CSC 0.96 0.84 0.87 0.92	1.8 1.8 2.1	tr. tr. tr. tr. tr.	0.5 0.3 0.5 0.3 0.5	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5					=		3.3		82 87	
6-11 11-22 22-38 38-50 50-60 Dopth (In.)	6.8 6.0 7.1 RBh,OAc CSC 0.96 0.84 0.87 0.92	1.8 1.8 2.1	tr. tr. tr. tr. tr.	0.5 0.3 0.5 0.3 0.5	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	3
6-11 11-22 22-38 38-50 50-60 Dopth (In.) 0-6 6-11 11-22 38-50 38-50	6.8 6.0 7.1 RBh,OAc CSC 0.96 0.84 0.87 0.92	1.8 1.8 2.1	tr. tr. tr. tr. tr.	0.5 0.3 0.5 0.3 0.5	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	3
6-11 11-22 22-38 38-50 50-60 Dopth (In.)	6.8 6.0 7.1 RBh,OAc CSC 0.96 0.84 0.87 0.92	1.8 1.8 2.1	tr. tr. tr. tr. tr.	0.5 0.3 0.5 0.3 0.5	9.1 8.1	2.0	11.1 9.3	9.3 8.2 8.7 4.5							3.3		82 87	3

Soil type: Anselmo loamy fine sand

860Nebr-21-1 Soil No.:

190 feet east of center of west road and 300 feet north of center of road to south or 1050 feet south and Location:

190 feet east of north 1/4 corner, Sec. 35, T20N, R22W, Custer County, Nebraska.

Physiography: Upland valley.

Relief: Undulating.

Slope: 2 to 3 percent; ridge top southeast slope.

Parent material: Eblian sands and silts.

Drainage: Good.

Permeability: Moderately rapid. I and use: Cultivated; in corn.

Described by: Herbert L. Kollmorgen and John Elder, June 1960.

Horizon and Lincoln Lab. Number

O to 6 inches. Very dark to dark grayish brown (10YR 3.5/2 moist) losmy fine sand; weak fine crumb Alp 13461 breaking to single grained structure; very friable moist; no effervescence; abrupt smooth boundary.

This surface texture is believed to be a fine sandy loam before wind erosion affected surface.

6 to 11 inches. Dark grayish brown (10YR 4/2 moist) fine sandy loam to very fine sandy loam; weak A12 coarse and medium blocky breaking to weak fine subangular blocky structure; very friable moist; no 13462

effervescence; gradual wavy boundary.

11 to 22 inches. Grayish brown to dark grayish brown (10YR 4.5/2 moist) fine sandy loam; weak 13463 medium subangular blocky breaking to fine and very fine subangular blocky structure; very friable

moist; many fine channels or pores and openings; no effervescence; gradual wavy boundary.

22 to 38 inches. Grayish brown (10YR 5/2 moist) fine sandy loam; weak coarse and medium subangular blocky breaking to single grained structure; very friable moist; no effervescence; gradual wavy

boundary.

38 to 50 inches. Light brownish gray to grayish brown (10YR 5.5/2 moist) fine sand; single grained;

loose moist; clear smooth boundary.

C3 13466 50 to 60 inches. Stratified dark grayish brown and grayish brown (10 percent 2.5Y 4/2 and 90 percent 10YR 5.5/2 moist) stratified very fine sandy loam and fine sandy loam; platy breaking to single grained structure; very friable moist; slight effervescence; gradual smooth boundary.

SOIL SURVEY LABORATORY Lincoln, Nebr. 5/24/57

SOIL TYPE Belfore LOCATION Cuming County, Nebraska

silty clay loam

SOIL NOS. 8-55-Nebr-20-1-(1-8) LAB. NOS. 2824-2831

	***************************************	1Bla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm,) (pe	r cent)	3 <b>A</b> 1		1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM CHAR	FINE SAND	VERY FINE SAND	SILT	GLAY			2A2 > 2	TEXTURAL CLASS
: 		2.1	1-0.5	0.5-0.25	0. 25-0. 10	0.10-0.05	0,05-0.002	< 0.002	0.2-0.02	0.02-0.002		
0-7	Alp	_	0.1	0.1	0.2	3.0	61.2	35.4	40.9	23.4	-	sicl
7-14	Al2	<b>-</b>	0.1	0.1	0.2	ĭ.7	58.9		;	27.3	_	sicl
14-39	B1		0.1	_	0.2	1.7	57.1	40.9	30.7	28.2	-	sic
19-25	B21		0.1	0.1	0.2	1.7		40.0	32.3		-	sic/sic
25-39		-	-	0.1	0.2	2,2	61.0	36.5	36.1	27.2		sicl
39-48	B23	-	-	-	0.2	3.4	63.4	33.0	40.8	26.1	-	si.cl
4855	<b>B</b> 3	-	-	0.1	0.3	4.1	63.2		41.8	25.6		sicl
<b>5</b> 5-60	C	-	0.1	0.1	0.3	5-3	64.6		46.8	23.3	-	sicl
**************				III) Mesupipropheric		doddad 'r regading day	ELECTRI-	(Gedjootspoo	<b>20</b> 224211114110>017	MOIS		ENSIONS
	9H 8	CLS.		ANIC MA		Be Tit	CAL			- PTU13	DAE II	482
			6Ala			EST% SALT	CONDUC-	CaCO3	GYPSUM me./100g.	1/10	1/3	15
	1:5		ORGANIC CARBON		C/N	(BUREAU CUP)	ECHIO3		me,/100g. SOIL	ATMOS.	ATMOS.	ATMOS.
1:1			96	%			PER CM	95		96	%	9,
+					77.		1		•••	1		14.2
5.8	6.1	5.9	2.41	.213	11.3	Ì	1			•		16.1
5.9	6.2	6.3		.163	11.0		•	ļ		•		16.8
6.0	6.2	6.5	1.10		10.8	Ī		Ì		j .		
6.1	6.3	6.4	0.75	.070	10.7	İ		į		İ		16.7
6.0	6.4	6.6	0.50	į	1	į		į		į	į	15.9
6.3	6.3		0.35	j		į	ļ	Ī			Ī	15.1
6.4	6.5	6.7	0.21	1	•	1	Ì	i .		l	ĺ	15.3
6,5	6.6	6,8	0.22		1							14.6
5Ala		EXTRAC				BASE	***************************************	***************	****************			
CATION	6 <b>N</b> 2b	602ъ	[	6P2a	602a	SAT.		4A38				MOISTURE
EXCHANGE	Ca	Me	н	No	K			Vol.		l	i	SATU-
CAPACITY			1		1			Wt.		į		RATION
<del></del>		millequiv	alents per	100g. soi	' <del></del>	5C1		g/cc_	·			**
28.2	17.1	6.5		0.1	1.3	89	1	1	į		ļ	
28.8	17.3	6.6		0.1	0.7	86		1.18		İ	ļ	
29.9	18.8	7.9	l	-	0.6	91		Į	Í		1	
30.4	19.3	8.5	1	0.1	0.6	94		]	1	1	ļ	
29.1	18.9	8.1		0.1	0.6	95	1	1.42	1		•	1
27.1	18.2	7.6	•	0.3	0.5	98	į	-			Ì	ŧ
27.3	18.7	7.0	İ	0.2	0.5	97		-	ļ	Ī	Į.	
26.5	18.7	7.4	Ī	0.2	0.4	100	1	1.25	į	i	1	Į
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Soil type: Belfore silty clay loam Soil No.: S55Nebr-20-1-(1-8) i in i الله إلى أن أ Physiography: Nearly level plain; 1/2 to 1 percent southeast 1/2-mile long slope; about 200 feet north of shallow swale-like drain. Use: Cultivated, corn. Collected by: D. W. DeMoude, H. L. Kollmorgen, B. H. Williams, J. A. Elder, R. D. Greenawalt, T. F. Clapper and J. S. Allen, July 1955.

Described by: B. H. Williams Horizon and Mandan Lab. Number اللل أ

	SOIL	SURVI	EY LAI	BORAT	TORY.	Idno	oln, N	ebr.	************	5/24/	<u> </u>	**************	
	SOIL	TYPE_	Belfore silty cl	ev loem	LC	CAT	ION	Cuming	County,	Nebra	ıska		
	6611	***	_						0020	0910			
	SOIL	NOS.		Nebr-20							***********	) - p- <del></del>	
	***************************************	1 1	IBIa				JTION (i	n mm.) (pe	r cent)	3Al	2 <b>A</b> 2	raintanachra <del>idh - 1868</del>	
	DEPTH	HORIZON CS	ERY PARSE COARS AND SAND	E MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			<b>&gt;</b> 2	TEXTURAL CLASS	
	0-7	Alo	2-1 1-0.5 - O.]		0.25-0.10 ( 0.2	3.10 3.1		36.0				sicl	
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Soil type: Belfore silty clay loam

Soil No : S55Nebr-20-2-(1-9)

Jocation: 600 feet north and 150 feet east of southwest corner Sec. 33, T24N, R6E, Cuming County, Nebraska; 3 miles east and 5 miles north of Beamer, Nebraska, just north of Wisner-Bancroft road, about midway between the

Physiography: Nearly level plain; less than 1 percent slope to the southeast.

Use: Cultivated, corn.

Collected by: D. W. DeMoude, H. L. Kollmorgen, B. H. Williams, J. A. Elder, R. D. Greenawalt, T. F. Clapper and

J. S. Allen, July 1955.

Described by: B. H. Williams.

Horizon and Mandan Lab. Number

0 to 7 inches. Very dark grayish brown to very dark brown (10YR 3.5/1.5 dry to 2/1.5 moist) silty clay Alp 2832

losm; weak fine and very fine granular; soft, dry; friable, moist; abrupt smooth lower boundary.

7 to 12 inches. Very dark grayish brown to very dark brown (10YR 3.5/2 dry to 2/2 moist) silty clay loam; very weak coarse primmatic and moderate medium and fine granular structure; slightly hard, dry; 2833

friable, moist; clear smooth lower boundary.

12 to 17 inches Park gravish hower to your dark gravish hower (10VR 4/2 dry to 2 5/2 moist) silty

	Politica
2834	clay loam; weak coarse prismatic and moderate fine and very fine blocky and fine granular structure; hard, dry; firm, moist; smooth clear lower boundary.
121. 1835	17 to 24 inches. Dark brown (10YR 4.5/3 dry to 3/3 moist) heavy silty clay loam; moderate coarse prismatic to moderate and strong fine and medium blocky structure; weak to moderate glaze on peds; hard, dry; firm, moist; plant roots common to many in this horizon and ones above; clear smooth lower boundary.
<b>1922</b> 19836	24 to 33 inches. Brown to dark brown (10YR 5.5/3 dry to 3.5/2.5 moist) silty clay loam; few faint fine gray and yellowish brown mottles and very dark brown iron-manganese soft concretions; moderate coarse prismatic and moderate medium and fine blocky structure; moderate glaze on peds; hard, dry; firm, moist; plant roots few to common; clear smooth lower boundary.
823 2837	33 to 40 inches. Hight yellowish brown to light olive brown (2.5Y 6/3 dry to 5/4 moist) silty clay loam; common medium distinct gray and yellowish brown mottles and dark brown to black iron-manganese soft concretions; moderate coarse prismatic and weak medium and fine blocky structure; moderate glaze on peds; hard, dry; firm, moist; only a few living plant roots in this horizon; clear smooth lower boundary.
B3 2838	40 to 47 inches. Light yellowish brown to light clive brown (2.5Y 6/4 dry to 5/4 moist) silty clay loam; many fine distinct gray and yellowish brown mottles and dark brown fine iron-manganese soft concretions; weak coarse prismatic structure; little or no horizontal cleavage; weak thin discontinuous glaze on vertical prism faces; hard, dry; firm to friable, moist; no living plant roots but old root channels common to many; noncalcareous; clear smooth lower boundary.
C 2830	47 to 54 inches. About equal amounts of 2.5Y 7/2, 7/4 and some 10YR 7/6 dry to about equal amounts of 2.5Y 6/2, 5/4 and 5/6 and some 10YR wellowish brown and dark brown, moist, coloring silty clay loam:

massive; slightly hard, dry; friable, moist; many fine very dark brown iron-manganese soft concretions; old root channels and pores common; noncalcareous; clear smooth lower boundary.

light yellowish brown to light olive brown (2.5Y 6/3 dry to 5/4 moist) silty clay Cca 2840 loam or heavy silt loam; common distinct fine gray and strong brown mottles and very dark brown ironmanganese streaks and soft concretions; massive; calcareous; strong effervescence; mycelial and fine soft concretionary lime and a few hard lime concretions 2 to 4 mm. in diameter; many old root channels and pores, some of which are lined with or filled with lime carbonate.

Horizons Alp, B22 and C sampled for Bureau of Public Roads.

SOIL SURVEY LABORATORY Mandan, N. Dak. s/ 9/22/55

SOIL TYPE Belfore LOCATION Madison County, Nebraska silty clay loam

SOIL NOS. S54Nebr-60-1-(1-8) LAB. NOS. 2202-2209

	1	1B1b		PARTI	CLE SIZ	E DISTRIB	UTION (in	тт.) (ре	r cent)	3A1		
DEPTH INCHES	HORIZON	VERY COARSE SAND 2-1	COARSE SAND 1.0.5	MEDIUM SAND 0.5-0.25	FINE SAND 9 25-0 10	VERY FINE SAND C 10-0.05	SILT 0.05-0.002	CLAY < 0 002	0. 2-0.02	<b>407-401</b> 2	> 2	TEXTURAL CLASS
0-7	Alp	_	0.1	0.3	1.0	7.6	55.1	35.9	42.8	20.6	_	sicl
7-10	A12	<b>!</b>	_	0.1	0.3	5.4	51.8	42.4	37.9	19.5	_	sic
10-21	B1.	_	_	0.2	0.4	5.9	50.6	42.9	36.7	20.1	-	sic
21-32	B21	<b>!</b> –	_	0.1	0.3	6.2	55.7	37.7	41.8	20.3	-	sicl
32-38	B22	-	0.1	0.1	0.4	6.6	58.2	34.6	44.8	20.3	-	sicl
38-44	В3	-	0.1	0.2	0.7	9.5	57.8	31.7	47.6	20.1	-	sicl
44-57	С	_	_	0.1	0.4	7.3	61.2	31.0	45.2	23.5	-	sicl
57-62	Cca	0.2	0.1	0.2	0.5	9.0	64.7	25.3	48.5	25.6	••	sil
**************************************	pH	<del>, , , , , , , , , , , , , , , , , , , </del>	ORG	ANIC MA	TER	: 	ELECTRI-	6Ela	Manarattrata (144	MOIST	URE TO	NSIONS
SATU- RATED	8Cla		6Ala ORGANIC	6BL	С/И	ESTS SALT (BUREAU CUE)	CONDUC-	:	GYPSUM me./190g. SOIL	1/10 ATMOS.	1/3 ATMOS.	15 ATMOS.

Soil type: Belfore silty clay loam Soil No.: S54Nebr-60-1-(1-8)

Location: .2 mile east and 150 feet north of southwest corner Sec. 32, T22N,

R2W; about 6 miles west of Madison, Madison County, Nebraska. Topography: 1 percent east or northeast facing slope on gently undulating plain

remnant.

Use: Cultivated, corn 1954. Described by: B. H. Williams.

Mandan

Lab.

No. Horizon Depth

2202 Alp 0-7" Dark grayish brown (10YR 4/2, dry) to very dark brown (10TR 2.5/2, moist) silty clay loam; moderate very fine gramular structure; soft, dry; friable, moist; abrupt smooth lower boundary.

2203 A12 7-10" Very dark grayish brown (10YR 3/2.5, dry) to very dark brown (10YR 2/2.5, moist) silty clay loam; strong fine granular structure; soft, dry; very friable, moist; clear smooth lower boundary.

10-21" Dark brown (10YR h/3. drv) to dark brown (10YR 3/3. moist)

heavy silty clay loam; compound weak coarse prismatic, moderate coarse subangular blocky and strong very fine subangular blocky or fine and medium granular structure; slightly hard, dry; friable, moist; clear smooth lower boundary. 2205 B21 21-32" Brown (10YR 5/3, dry) to brown (10YR 4/3, moist) heavy silty clay loam or silty clay; compound moderate coarse prismatic and strong coarse and medium blocky structure with moderate glaze on blocks and some very dark brown staining along vertical cleavage planes; hard, dry; firm, moist; gradual smooth lower boundary. 2206 B<sub>22</sub> 32-38" Brown (10YR 5/3, dry) to dark brown (10YR 4/3, moist) heavy silty clay loam or silty clay; compound moderate coarse prismatic and strong coarse blocky structure with moderate glaze on blocks and some very dark brown staining along vertical cracks; hard, dry; firm, moist; gradual wavy lower boundary. 38-44" Light yellowish brown (10YR 6/4, dry) to yellowish brown 2207 B3 (10YR 4.5/4, moist) silty clay loam; a few faint fine gray and brown mottles; moderate coarse blocky structure; hard, dry; friable, moist; gradual wavy lower boundary. 2208 C 山-57" Pale yellow (2.5Y 7/4, dry) to yellowish brown (10YR 5/4, moist) heavy silt loam; few prominent gray brownish yellow and strong brown mottles and a few very dark brown iron-manganese spots; massive, but with some tendency to weak coarse subangular blocky structure; slightly hard, dry; friable, moist; numerous pores and fine, thread-like channels; no roots apparent; gradual wavy lower boundary. 2209 Cca 57-62" Pale yellow (2.5Y 7/4, dry) to light yellowish brown (10YR 5.5/4, moist) silt loam; mottles about as in horizon above; massive; soft, dry; very friable, moist;

> calcareous, but effervesces only on lime spots and concretions in the upper part; moderate to strong effervescence throughout in the lower part.

	SOIL	SURVEY	LABORAT	ORY	Mundan,	N. Dak. 2/	<u>'</u>	0/55
	SOIL	TYPE	Belfore silty clay loam	_ LOCA	ATION	Platte 0	ounty, Nebras	ka
	SOIL		\$54Nebr-71-					
<b>.</b> -	DEPTH	1 1	PARTIC	į.	i	in mm.) (per c	ent)3A1	TEXTURAL
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17

Soil type: Belfore silty clay loam

Soil No.: S54Nebr-71-1-(1-8)

location: 100 feet east and 100 feet south of north quarter corner, Sec. 31,

T20N, R2W; Platte County, Nebraska.

Topography: About 1 percent south facing slope--broad undulating and gently

sloping plain.

Use: Cultivated, corn 1954; rotation with small grain and red clover in

alternate years except alfalfa for a period of 3 or 4 years out of each 15. Corn yields about 60 bushels maximum, as low as 3 or 10 bushels in 1930 drought years. In cultivation about 60 years. No amendments used

on land.

Described by: B. H. Williams.

Mandan

Lab.

No. Horizon Depth

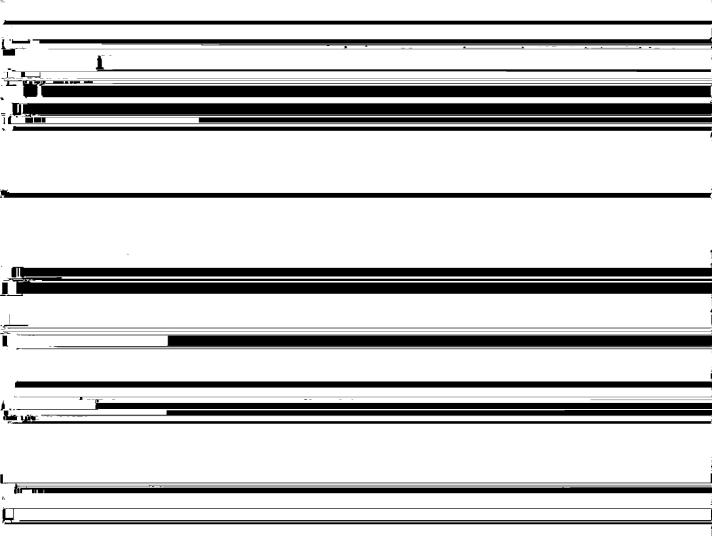
2194 Alp 0-7"

Dark grayish brown (10YR L/2, dry) to very dark grayish brown (10YR 2.5/2, moist) silty clay losm; weak fine granular structure; soft, dry; friable, moist; abrupt

smooth lower boundary.

21.95 A<sub>3</sub> 7-10\*

Very dark grayish brown (10YR 3/2, dry) to very dark brown (10YR 2/2, moist) silty clay loam; strong fine granular structure; soft, dry; friable, moist; clear



## SOIL TYPE Bridgeport LOCATION Dusky County, Rebrasks

SOIL NOS. 57/Mebr-29-1 LAB. NOS. 6814-6820

		130a		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (p4	w cent)	341		į
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTUR.
		2-1	1-0,5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	003-0003		
0-5	App	0.1	0.2a	0.22	1.8a	43.8a	42.5	11.4	80.7	7.0	_	ì
5-11	AC	0.1	0.18	0.la	1.3a	41.2a	45.3	11.9	79.5	8.1	_	ī
11-23	<b>CL</b> .	0.1	0.la	0.la	1.6a	47.2a	40.8	10.1	83.7	1 (	-	ī
3-35	<b>C5</b>	-	-	0.10	0.8a		54.8	9.2	79.7	10.8	-	sil
5-47	ALLIP.	- ,	0.la	0.3a		44.5a	39.8	12.8		6.4	-	1
7-56	Al2b	-	0.1a	0.34	2.6	45.4a	38.3	13.3	79.5	6.4	-	1
6-66	A1.3b	-	0.2a	0.4a	3.la	45.8a	37.1	13.4	79.3	6.1	••	1
	pН				TTER	8A2	. CAI 1	6Ela	4A3a	MOIST	URE TE	NSIONS
BCH)	8Cla	8Cla	6ALA	6kla		EST% SALT	CONDUC- TIVITY EC = 103	CoCO <sub>3</sub>				41
RATED PASTE	1:1	1:10	ORGANIC CARBON	NITRO- GEN	C/N	(BUREAU CUP)	EC×103	equiv-	Vel.	1/10 ATMOS.	1/3 ATMOS.	15 ATMO
TASIE		1.10	g.	-	٧.	COF	MILLIMHOS PER CM BATA		Wt.		**************************************	1
				2				*	E/CQ.			
7.7	8.2 8.2	8.8 8.8		0.066 0.044	10 8	<b>₹0.20</b>	0.8	3	2 62			7.1
7.7 7.7	8.3	8.9		0.019	٥	₹0.20	0.5 0.5	3	1.43			7.4
	8.2	8.8		0.025		₹0.20	0.4	5 4	1.36			7.7
	8.0	8.7		0.050	10	<0.20	0.4	2				7.4
	8.1	8.8		0.043	10	<0.20	0.5	3				7.8
	8.1	8.8	0.32	0.035	9	⊲0.20	0.4	3				7.8
5Ala	Barren est est est est est est est est est est	EXTRAC	TABLE	CATIONS	5 <b>R1</b> a	**************************************	B <b>A</b> l SATU	RATION	EXTRAC	T SOLUE	······································	8 <b>A</b>
CATION CHANGE				6P2a		•	6Pla	601a	[			MOISTU
(CHANGE APACITY NH <sub>I</sub> Ac	Ca	Mg 	H dients per	No	K	EXCH.	No	K	valents pr	114		SATU- RATIO
14.4		*****			2.2	%%	0.3	1.8				43.1
14.8				_	1.4		0.2	0.7	•			40.9
12.8				_	1.0	-	0.3	0.5				40.
15.3				0.1	1.2	1	0.3	0.4				43.2
15.0				0.1	1.0	1	0.4	0.4				44.6
14.2				0.1	1.2	1	0.4	0.5	<u> </u>			45.5
13.7	,			0.1	1.3	1	0.5	0.6				45.7
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Soil type: Bridgeport very fine sandy loam

Soil No.: S57Nebr-29-1-(1-7)

25 mile north and .1 mile east of southwest corner Sec. 36, T2N, R37W, about 120 feet north of Highway Location:

34 and 540 feet east of culvert; approximately 3 miles southwest of Max, Dundy County, Nebraska.

Topography: On a 2 percent smooth south facing colluvial-alluvial fan slope. Land use: Alfalfa 1957. Described by: Ross Greenawalt.

Horizon and Lincoln Lab. Number

0 to 5 inches. Light brownish gray (10YR 6/2 dry) to dark grayish brown (10YR 4/2 moist) very fine Ap 6814 sandy loam; weak medium and coarse angular blocky structure (cloddy); soft, dry; very friable, moist;

strong effervescence; gradual smooth lower boundary.

5 to 11 inches. Hight brownish gray or pale brown (10YR 6/2.5 dry) to grayish brown (10YR 5/2 moist) AC 6815 very fine sandy loam; weak coarse angular blocky structure; soft, dry; very friable, moist; violent

effervescence; gradual smooth lower boundary.

C1 6816 11 to 23 inches. Very pale brown or pale brown (10YR 6.5/3 dry) to brown (10YR 5/3 moist) very fine sandy loam; weak coarse subangular blocky structure; soft, dry; very friable, moist; violent effer-

vescence; abrupt smooth lower boundary.

23 to 35 inches. Very pale brown (LOYR 7/3 dry) to pale brown or brown (LOYR 5.5/3 moist) very fine 62 6817 sandy loam; weak coarse subangular blocky structure; soft, dry; very friable, moist; violent efferves-

cence: abrupt smooth lower boundary.

35 to 47 inches. Grayish brown (10YR 5/2 dry) to dark grayish brown or very dark grayish brown (10YR Allb 3.5/2 moist) very fine sandy loam; weak fine and very fine granular structure; soft, dry; very friable, moist; noncalcareous; gradual smooth lower boundary. 6818

Al2b 47 to 56 inches. Light brownish gray (10YR 6/2 dry) to dark grayish brown (10YR 4/2 moist) very fine 6819 sandy loam; weak coarse subangular blocky structure breaking into weak very fine granules; soft, dry;

very friable, moist; violent effervescence; gradual smooth lower boundary.

А13Ъ 56 to 66 inches. Pale brown (10YR 6/3 dry) to grayish brown or brown (10YR 5/2.5 moist) very fine 6820 sandy loam; weak coarse subangular blocky structure breaking into weak very fine granules; soft, dry;

very friable, moist; violent effervescence.

Remarks: The lime occurring in this profile is disseminated. Few krotovinas approximately 2 inches in diameter occur throughout the profile which have been caused by rodent working and mixing. There is some question if coarse angular and subangular blocky structure in the C norizons and the Alb horizons is genetic soil structure. The structure may be due to soil fracture rather than to true structure planes. Source of parent material is a 3- to 4square mile drainage area consisting of steep thin silty soils with Tertiary outcrops on the lower slopes. (A side drainage to the Republican River Valley.) Horizons Ap, Cl and Allb were sampled for Bureau of Public Roads.

SOIL SURVEY LABORATORY Lincoln, Nebr. September 1958 SOIL TYPE Bridgeport LOCATION Dundy County, Nebraska

silt loam

SOIL NOS. 857Nebr-29-2 LAB. NOS. 6821-6827

	1	lBla										
DEPTH INCHES	HORIZON	YERY CDARSE SAND 2-1	COARSE SAND 1-0,5	MEDIUM SAND 0.5-0.25	FINE SAND 0,25-0.10	VERY FINE SAND 0.10-0.05	\$1LT 0.05-0.002	CLAY < 0.002	0.2-0.02	Q02-Q002	2A2 > 2	TEXTURAL CLASS
0-5	Ap	0.1	0.2a	0.2a	1.3a	29.7a	53.1	15.4	70.3	13.5		sil
5-9	AC	0.1	0.la		1.2a	28.3a	52.3	17.8	67.8		-	sil
9-13	CI	-	-	0.la	1.6a	37.9a	45.0	15.4	73.9	10.4	-	1 }
13-21	Abl.	-	-	0.2a	1.la	36.9a	46.2	15.6	73.8	10.2	-	1
21-34	Cbl	0.1	- :	0.2a	2.5a	36.2a	47.5	13.5	76.6	· •	-	]1
34-42	Ab2	-	0.2a	0.7a	2.3a	36.2a	48.0	12.6	76.9	8.8	-	]1 [
42-60	Ch2	-	0.4a	2.3a	5.0a	46,62	34.8	10.9	79.5	4.9	-	v <u>f</u> sl

Soil type: Bridgeport silt loam Soil No.: S57Nebr-29-2-(1-7)

Iocation: 2300 feet east and 45 feet north of southwest corner Sec. 30, T2N, R36W; approximately 12 miles southwest

of Max, Dundy County, Nebraska, on U.S. Highway 34.

Topography: On a 1 percent convex south-southwest facing colluvial-alluvial fan slope. Described by: Ross Greenawalt.

Land use: Corn 1957.

Horizon and Incoln Ich. Wamber

THE A.

0 to 5 inches. Light brownish gray (10YR 6/2 dry) to dark grayish brown (10YR 4/2 moist) very fine Ap 6821 sandy losm; weak very fine granular structure; soft, dry; very friable, moist; violent effervescence;

abrupt smooth lower boundary.

5 to 9 inches. Pale brown (10YR 6/3 dry) to dark grayish brown or dark brown (10YR 4/2.5 moist) silt 6822 losm; weak coarse subangular blocky structure; soft, dry; very friable, moist; violent effervescence;

gradual smooth lower boundary.

9 to 13 inches. Brown or yellowish brown (10YR 5/3.5 dry) to dark brown or dark yellowish brown (10YR c1 6823 4/3.5 moist) silt loam; weak coarse subangular blocky structure breaking into weak fine granules; soft,

dry; very friable, moist; violent effervescence; abrupt smooth lower boundary.

Ab1 13 to 21 inches. Brown (10YR 5/3 dry) to dark grayish brown (10YR 4/2 moist) gilt loam; weak fine and

lower houndary.

21 to 34 inches. Very pale brown or pale brown (10YR 6.5/3 dry) to grayish brown or brown (10YR 5/2.5 Cbl moist) very fine sandy loss; weak coarse subangular blocky structure; soft, dry; very friable, moist; violent efferwescence; abrupt smooth lower boundary. 6825

34 to 42 inches. Grayish brown (10YR 5/2 dry) to dark grayish brown or very dark grayish brown (10YR 6826 3.5/2 moist) very fine sandy losm; weak fine and very fine granular structure; soft, dry; very friable, moist; violent effervescence; clear smooth lower boundary.

42 to 60 inches. Pale brown (10YR 6/3 dry) to grayish brown (10YR 5/2 moist) light very fine sandy **රා2** loss; weak coarse subangular structure; soft, dry; very friable, moist; violent effervescence. 6827

Remarks: The lime occurring in this profile is disseminated. Few knotovinas approximately 2 inches in diameter occur throughout the profile which have been caused by rodent working and mixing. There is some question if the coarse subangular blocky structure in the AC, Cl. Chl. and Ch2 horizons is genetic soil structure. The structure may be due to soil fracture rather than true structure planes. Source of parent material is a 3- to 4-square mile drainage area consisting of steep and thin silty soils with Tertiary outcrops on the lower slopes. (A side drainage to the Republican River Valley.) Horizons Ap, Abl, and Ab2 sampled for Bureau of Public Roads.

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	SOIL	TYPE	<u>Bri</u>	gepor		L	OCAT	ION	Dundy	County	, Nebra	ska	
	SOIL	NOS	5.	85	/Nebr-	29-4	** *******************	LAB.	NOS.	6833-	-6837		
		<b></b>	1R1a	<del>Matha</del> rr <del>inesseri</del> are	PART	ICLE SIZ	E DISTRIE	SUTION (i		er cent)	3A1	ederboometin radzej	<b>*******************</b>
	DEPTH INCHES	HORIZON				T	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURAL CLASS
			2-1	1.0.5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.002 33.5	< 0.002	I			vfsl/l
	<u> </u>	Ap	U.Z.	;	; 4.00	، دار ، عدا	33.20	ŧ <u>22•7</u>	1 13.0	٠٠٠٠ و	1. 0.2.		ATPT\ T
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Soil type: Bridgeport very fine sandy loam

Soil No.: S57Nebr-29-4-(1-5)

Location: 2555 feet west of northeast corner Sec. 33, TlN, F41W, approximately 85 feet east of north quarter corner,

.75 mile west of Haigler, Dundy County, Nebraska, on curve of U.S. Highway 34, about .1 mile beyond highway intersection with Sullivan Draw, then west 175 feet.

Topography: On a smooth 0-1 percent northeast facing high bottom or low terrace position along the Arikaree and

Republican Rivers.

Land use: Sorghum 1957.

Described by: Ross Greenawalt.

Horizon and Mincoln Tab. Number

0 to 7 inches. Light brownish gray (10YR 6/2 dry) to dark grayish brown (10YR 4/2 moist) very fine **Ар** 6833 sandy loam; weak fine and very fine granular structure; soft, dry; very friable, moist; slight effer-

vescence; abrupt smooth lower boundary.

AC 7 to 19 inches. Pale brown (10YR 6/3 dry) to dark grayish brown or dark brown (10YR 4/2.5 moist) silt 6834 loam; weak coarse subangular blocky structure breaking into weak fine and medium granules; soft, dry;

very friable, moist; violent effervescence; gradual smooth lower boundary.

cı 6835 19 to 34 inches. Pale brown (10YR 6/3 dry) to brown (10YR 5/3 moist) very fine sandy loam; weak coarse subangular blocky structure; soft, dry; very friable, moist; violent effervescence; gradual smooth

lower boundary.

34 to 48 inches. Pale brown (10YR 6/3 dry) to brown (10YR 5/3 moist) light very fine sandy losm; weak 6836 coarse subangular blocky structure; soft, dry; very friable, moist; violent effervescence; gradual

smooth lower boundary.

48 to 60 inches. Pale brown (10YR 6/3 dry) to grayish brown (10YR 5/2 moist), very fine sandy loam; weak coarse subangular blocky structure; soft, dry; very friable, moist; violent effervescence. C3 6837

Remarks: The lime in this profile occurs as disseminated lime. Few krotovinas approximately 2 inches in diameter occur throughout the profile which have been caused by rodents. There is some question if the weak coarse subangular blocky structure in the Cl, C2 and C3 horizons is genetic soil structure. The structure may be due to soil fracture rather then to true structure planes. This soil is developing in material that has been deposited by a rather large drainage (Sullivan Braw). The present channel of this drainage is slightly lower than the surrounding land where this soil is located. This position is also slightly higher than the first bottom lands of the Republican and Arikaree Valleys. The drainage area of Sullivan Draw consists of steep light-colored lossal soils with Tertiary outcrops on some slopes. Horizons Ap, Cl and C3 sampled for Bureau of Public Roads.

	SOIL	SURVEY	LABORA	TORY <u></u>	ncoln, Ne	br.	February .	1959	30
	SOIL	TYPE B	rchard ay loam	LOCA1	ION	unders C	ounty, Neb	raska.	
	SOIL	Nos.	S58Nebr-78	3 <b>-1-(</b> 1-8)	LAB. N	10s	8414-8421	ankakan si sidan saddi idaan anasters sa ays	
	DESTH	1Bla VERY HORIZON COARSE SAND 2-1	COARSE MEDIUM	ICLE SIZE DISTRI VERY FINE FINE SAND 0.25-0.10 0.10-0.05	SUTION (in a	mm.) (per ce CLAY	nt) 3A1	2A2 TEXTURAL CLASS	
1	0-6	Alp 2.1	4.4 6.4	14.3 10.4	36.7	25.7 41	.3 12.8	2 cl	
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Soil type: Burchard clay loam S58Nebr-78-1-(1-8) Soil No.:

Location: 1100 feet south and 30 feet west of northeast corner Sec. 30, T13N, R6E; approximately 3 miles east and

1/2 mile south of Valparaiso, Saunders County, Nebraska.

Physiography: Dissected till plain.

Relief: 40 to 60 feet.

Slope: 12 percent west facing slope.

Parent material: Glacial till.

Erosion: Moderate. Drainage: Excessive.

Permeability: Moderately slow.

Land use: Alfalfa 1958.

Described by: W. E. McKinzie and J. A. Elder.

Horizon and Lincoln Lab. Number

0 to 6 inches. Very dark brown (10YR 2/2 moist) to very dark grayish brown (10YR 3/2 dry) light clay 8414 loam; weak fine granular; friable moist; no effervescence; abrupt smooth boundary.

Al2 6 to 9 inches. Black (10YR 2/1 moist) to very dark grayish brown (10YR 3/2 dry) light clay loam; weak 8415 coarse subangular blocky to moderate medium granular; friable moist; no effervescence; abrupt smooth

boundary.

B21 9 to 13 inches. Dark brown (10YR 3/3 moist) to dark grayish brown (10YR 4/2 dry) clay loam; weak 8416 coarse prismatic to moderate fine and medium subangular blocks; slightly hard, dry; friable, moist; no effervescence; thin discontinuous clay skins on aggregates; clear smooth boundary.

13 to 20 inches. Very dark grayish brown (10YR 3/2 moist) to dark grayish brown (10YR 4/2 dry) heavy clay losm; weak coarse prismatic to strong fine and medium subangular blocks; hard, dry; firm, moist; B22 8417

> no effervescence; thin continuous clay skins on aggregates; few small iron stains; abrupt smooth boundary.

20 to 24 inches. Dark brown (10YR 4/3 moist) to pale brown (10YR 6/3 dry) clay loam; weak coarse pris-B3ca 8418 matic to moderate medium subangular blocky; hard, dry; firm, moist; violent effervescence; few pockets of disseminated lime; thin discontinuous clay skins on aggregates; clear smooth boundary.

24 to 36 inches. Dark grayish brown (2.5Y 4/2 moist) to grayish brown (2.5Y 5/2 dry) silty clay 8419 (slightly weathered till); strong medium and coarse blocky; very hard, dry; very firm, moist; violent effervescence; many fine distinct yellowish brown and dark brown mottles and small pockets and channels of soft white lime; gradual smooth boundary.

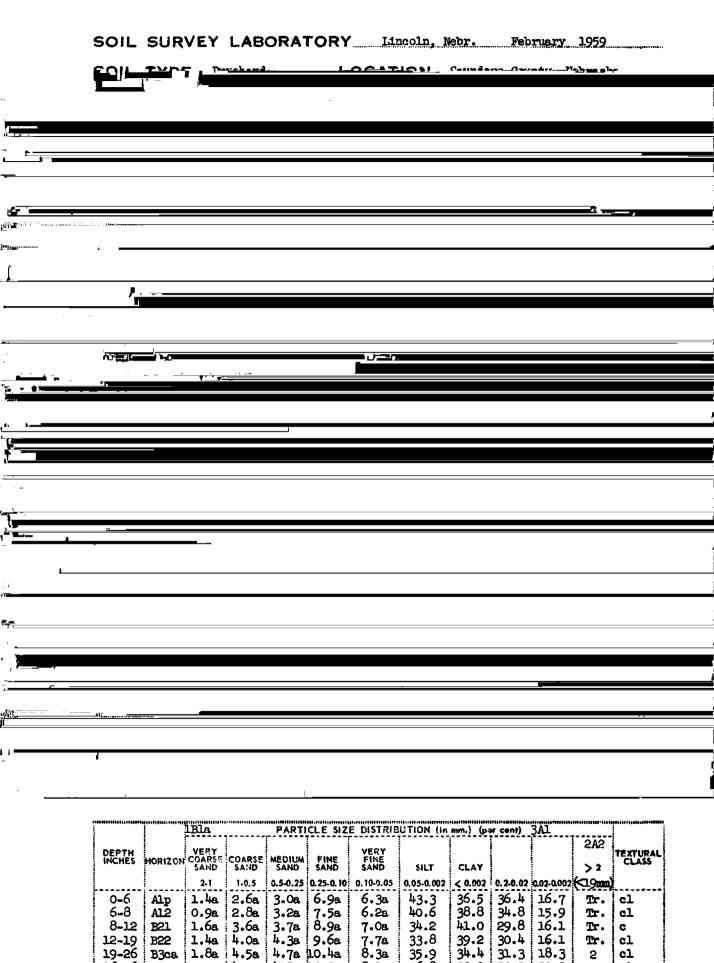
c2 8420 36 to 48 inches. Approximately 50 percent dark grayish brown (2.5% 4/2 moist) to light grayish brown (2.5Y 6/2 dry) and 50 percent dark yellowish brown (10YR 4/4 moist) to yellowish brown (10YR 5/4 dry) silty clay (alightly vesthered till): strong medium and coarse blocky: very hard. dry: very fi

> many pockets and channels of soft white lime; horizon streaked with reddish brown iron stains; gradual smooth boundary.

48 to 60 inches. Approximately 50 percent dark grayish brown (2.57 4/2 moist) to light grayish brown (2.5Y 6/2 dry) and 50 percent dark yellowish brown (10YR 4/4 moist) to yellowish brown (10YR 5/4 dry) silty clay (slightly weathered till); strong medium and coarse blocky; very hard, dry; very firm, moist; violent effervescence; mottled with many fine distinct yellowish brown and dark brown mottles; many pockets and channels of soft white lime; horizon streaked with reddish brown iron stains.

Note: Medium and coarse gravels scattered throughout profile,

C3 8421



Soil type: Burchard clay loam Soil No.: 858Nebr-78-5-(1-8)

Location: 160 feet north and 140 feet east of west quarter corner Sec. 20, Tl3N, RSE (approximately 40 feet north

of small gully); 22 miles west of Valparaiso, Saunders County, Nebraska.

Physiography: Dissected till plain.

Relief: 40 to 60 feet. Slope: 12 percent west facing slope. Parent material: Glacial till.

Erosion: Moderate. Drainage: Excessive.

Permeability: Moderately slow.

Iand use: Corn 1958.

Described by: W. E. McKinzie and J. A. Elder.

Horizon and Lincoln Lab. Number

0 to 6 inches. Very dark brown (10YR 2/2 moist) to very dark grayish brown (10YR 3/2 dry) light clay А1р 8449 loam; weak fine granular; friable, moist; no effervescence; abrupt smooth boundary.

6 to 8 inches. Very dark brown (10YR 2/2 moist) to very dark grayish brown (10YR 3/2 dry) clay loam; 8450 weak coarse subangular blocky; friable, moist; no effervescence; lighter-colored material from B horizon present is result of rodents; abrupt smooth lower boundary.

**B**21 8 to 12 inches. Very dark grayish brown (10YR 3/2 moist) to dark grayish brown (10YR 4/2 dry) silty clay loam; weak coarse prismatic to moderate fine subangular blocky; slightly hard, dry; firm, moist; 8451 no effervescence; thin continuous clay skins on aggregates; clear smooth boundary.

12 to 19 inches. Dark grayish brown (lOYR 4/2 moist) to grayish brown (lOYR 5/2 dry) heavy clay loam; **B22** 8452 weak coarse prismatic to strong fine and medium blocky; slightly hard, dry; firm, moist; no effervescence; thin continuous clay skins on aggregates; abrupt smooth boundary.

19 to 26 inches. Dark grayish brown (2.5Y 4/2.5 moist) to grayish brown (2.5Y 5/2 dry) heavy clay ВЗса 8453 loam; weak coarse prismatic to moderate fine and medium blocky; hard, dry; firm, moist; violent effervescence; thin discontinuous clay skins on aggregates; few fine faint yellowish brown and dark brown mottles; small pockets of soft white lime; clear smooth boundary.

26 to 36 inches. Grayish brown (2.5Y 5/2 moist) to light brownish gray (2.5Y 6/2 dry) silty clay C1 8454 (slightly weathered till); strong medium and coarse blocky; very hard, dry; very firm, moist; many medium distinct yellowish brown and dark brown mottles; many pockets and channels of soft white lime; iron and manganese concretions present; gradual smooth boundary.

**c2** 8455 36 to 46 inches. Grayish brown (2.5Y 5/2 moist) to light brownish gray (2.5Y 6/2 dry) silty clay (slightly weathered till); strong medium and coarse blocky; very hard, dry; very firm, moist; many medium distinct yellowish brown and dark brown mottles; many pockets and channels of soft white lime; iron and manganese concretions present; gradual smooth boundary.

46 to 60 inches. Grayish brown (2.5Y 5/2 moist) to light brownish gray (2.5Y 6/2 dry) silty clay C3 8456 (slightly weathered till); strong medium and coarse blocky; very hard, dry; very firm, moist; many medium distinct yellowish brown and dark brown mottles; many pockets and channels of soft white lime; iron and manganese concretions present.

Note: Few small and medium gravels scattered throughout profile.

SOIL SURVEY LABORATORY Lincoln, Nebr. 4/7/58

SOIL TYPE Canyon LOCATION Kimball County, Nebraska loam, eroded

SOIL NOS. \$57Nebr-53-8-(1-4) LAB. NOS. 5842-5845

		lBla	<b>*</b>	PARTI	CLE SIZ	E DISTRIE	WTION (in	mm.) (pe	er cent)	3A1	~~ ~	**************************************
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TENTURA CLASS
<b>-3</b>		2-1	1-0.5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	002-0002	<b>(</b> 29 <b>mm</b> )	
0-6 6-11	Alp AC	7.8a. 8.6a	15.1a 12.5a		14.1a 10.5a	12.5a 10.0a	21.3 22.8		34.6 28.1		5 9	sl scl
11-18 18-24	Cl. Dr	6.5a 13.7b	11.0e	1		10.la 9.46	25.9 29.2	28.9 25.3		_	8 32	scl 1
<b>a</b>	ЭН		OBC	VNIC WA	TTEO		lei setoi	6E)a		. wors	VIIIVIIII ***	
8Clb Satu- rated			·	6Bla		8A2 EST% SALT (BUREAU CUP)	ELECTRI- CAL CONDUC- TIVITY EC < 103 MILLIMHOS PER CM SALA		GYPSUM me./100g. SOIL	1/10 ATMSS.	IVRE TE	ATMEL
7.5 7.6 7.7	3.0 8.0 9.1	8.5 8.8 8.9	1.27 0.78 0.45	.130 .096 .051	9.8 8.1 8.8	<0.20 <0.20 <0.20	0.7 0.6 0.6	11 22 40				9.5 13.0 13.0
7.7	3.2	9.6	0.22	.030		<0.20	0.6	45				10.3

Soil type: Canyon loam, eroded

Location: Kimball County, Nebraska. 0.3 mile west of SE corner and 250 feet north (along oil well road) Sec. 3, T13N, R55W. About 8 miles south and 3 miles east of Kimball, Nebraska.

Topography: About a 4 percent ridge top in weathered Tertiary sands and silts on the dissected Tertiary plains. Cultivation: Fallow, 1957.

Described by: Ross D. Greenawalt and Bill McKinzie.

Soil No.: S57Nebr-53-8-(1-4)

Lincoln

16.NO. 142	Alp				(10YR 3/3 moist) lower boundary.	weak fine granuls	ır;
		•	 -				

6-11 inches. Very pale brown (10YR 7/3 dry) to brown (10YR 5/3 moist) loam; weak medium and coarse subangular blocky structure; very friable, moist; violent effervescence; gradual smooth 5843 AC lower boundary.

5844 11-18 inches. Very pale brown (10YR 8/3 dry) to pale brown (10YR 6/3 moist) loam; massive struc-Cl ture; very friable, moist; violent effervescence; abrupt wavy lower boundary.

18-24 inches. Weathered Tertiary consisting of large amount of limestone fragments with a loamy sand to sandy loam (10YR 7/3 moist) matrix. This horizon appears to have been reworked by rodents as materials from Cl and AC horizons were mixed through it. 5845  $\mathbf{Dr}$ 

Note: Horizons Al and Cl were sampled for the Bureau of Public Roads.

	SOIL	SURVEY							**********
	SOIL	TYPE Can	yon n, eroded	LO	CATION.	Kirball	County, Ne	braska	
	SOIL	Nos.	£57Nebu-53	-9-(1-4)	LAB.	NOS.	5846-5849	1875 FT 1 188 <del>5</del>	-4-494404
	PER INCHES		COARSE MEDIUM SAND SAND 1-0.5 0,5-0.25	FINE F SAND S/	STRIBUTION ( ERY INE AND 9.10.05.0.00	CLAY 02 < 0.002 0	2-0.02 002-000	>2 (<19mm)	KYLERAL ILASS
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	<b>† 5</b>								
F									

Soil type: Canyon loam, eroded

Location: Kimball County, Nebraska. 300 feet east and 140 feet north of 81/4 corner Sec. 27, T13N, R56W. About 12 miles south and 3.5 miles west of Kimball, Nebraska.

Topography: About a 2 percent ridgetop in weathered reworked Tertiary sands and silts on the dissected Tertiary

plains. Cultivation: Fallow, 1957.

Described by: Ross D. Greenawalt and Bill McKinzie. Soil No.: S57Nebr-53-9-(1-4)

Mncoln

<b>58</b> 46	Alp	0-4 inches. Grayish brown (10YR 5/2 dry) to dark brown (10YR 3/3 moist) loam; weak fine granular; very friable, moist; strong effervescence; abrupt smooth lower boundary.
~0). =	4.0	h o 4 - 2

4-9 inches. Light brownish gray (10YR 6/2 dry) to dark grayish brown (10YR 4/2 moist) loam; weak medium and coarse subangular blocky structure; very friable, moist; violent effervescence; clear 5847 smooth lower boundary.

9-16 inches. Light brownish gray (10YR 6/2 dry) to brown (10YR 5/3 moist) loam; massive structure; very friable, moist; violent effervescence; abrupt wavy lower boundary. 5848 C

5849 Dr 16-22 inches. Pinkish gray (7.5YR 7/2 dry) to light brown (7.5YR 6/4 moist) partially weathered Tertiary consisting of large amount of limestone fragments with a sandy loam to loam matrix.

Note: 0-16 inches. Limestone fragments on the surface and throughout profile. Fragments consist of 5 to 10 percent of soil mass. In the "Dr" area a 4-inch rodent hole with a 12-inch cavity (nest) was found. Horizons Almand C

OIL SURVEY LABORATORY Mandan, N. Dak. SOIL TYPE Cass LOCATION Saunders County, Nebraska fine sandy loss, deep SOIL NOS. S53Nebr-78-4-(1-6) LAB. NO . 1498-1503 PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 lBla 2A2 HORIZON COARSE COARSE MEDIUM FINE SAND SAND SILT CLAY > 2 0.50.25 0.25 0.10 0.10-0.05 0.05 0.002 < 0.002 0.2-0.02 002-0001 < 19mm 2.8 25.4 22.0 11.0 Tr. fsl 30.6 58.3 2.6 21.7 29.0 27.4 10.2 59.9 fal

Soil type: Case fine sandy losm, deep Soil No.: S53Nebr-78-4-(1-6)

Soil No.: \$53Mebr-78-4-(1-6)
Location: Five hundred feet north and 100 feet west of the SE corner Sec. 25, T14N, R9E, Saunders County, Nebraska.
Topographic position: Righ bottom land not subject to flood.
Relief: Slight; smooth very gently undulating swells and swales; slope less than 1 percent.
Drainage: Well drained.

Ground water: Probably 7 to 10 feet below surface.

Root distribution: Normal.

Iand use: Cultivated. Corn 1953.

Described by: B. H. Williams and Donald C. Yost.

Mandan

lab. No. Horizon

0-6 inches. Dark gray (16YR 4/1 dry) to very dark gray (16YR 3/1 moist) fine sandy loam; moderate fine and very fine granular; slightly hard, dry; very friable, moist; noncalcareous, some partly decayed crop residues mixed throughout; abrupt smooth lower boundary. 1498 Alp

1499 A12 6-15 inches. Dark gray (10YR 4/1 dry) to nearly black (10YR 2.5/1 moist) loam; weak medium and coarse subangular blocky separating to moderate fine crumb and moderate very fine granular:

		slightly hard, dry; very friable, moist; larger aggregates contain many fine and very fine pores and root openings, noncalcareous; gradual smooth lower boundary.
1500	AC	15-22 inches. Bark grayish brown (10YR 4/2 dry) to very dark brown (10YR 2/2 moist) fine sandy loam; very weak coarse and very coarse subangular blocky breaking to moderate fine and very fine granular; slightly hard, dry; very friable, moist; larger aggregates have many fine and medium size pores and root openings; noncalcareous; gradual smooth lower boundary.
1501	C.T	22-29 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3.5/2 moist) fine sandy loam; weak fine and very fine granular; alightly hard, dry; very friable, moist; many medium and large pores; noncalcareous; some mixing of lighter colored materials from below by worms; gradual smooth lower boundary.
1502	CS.	29-36 inches. Light brownish gray (10YR 6/2.5 dry) to grayish brown (10YR 5/2 moist) loomy fine sand; appears massive in place when moist but breaks into very weak medium and fine subangular blocks when dry; slightly hard, dry; very friable, moist; moncalcareous; gradual smooth lower boundary.
1503	СЗ	36-49 inches. Light brownish gray (10YR 6/2 dry) to grayish brown (10YR 5.5/2 moist) loamy very fine sand; massive, breaking into rounded lumps which when dry crush easily to single grains; slightly hard, dry; very friable, moist; noncalcareous; abrupt lower boundary.
	n	49-60 inches. Not sampled, medium to coarse sand.

SOIL Crete silt loam SOIL Nos S60Nebr-18-1 LOCATION Clay County, Nebraska

SOIL SURVEY LABORATORY Lincoln, Nebraska

LAB. Nos. 14263-14270

December 1964

		lBla						Size clas	s and part	icie diamet	er (mm) 3	Al						
			Total					Sand		Si							rse fragme	ents
Depth	Horizon	Sand	Silt	Clay	Very	Coarse	Medium	Fine	Very fine		Int III	int 🎞				2A2 > 2	2 - 19	19-76
(In )		(2-0 05)	(0.05 <u>–</u> 0.002)	( < 0 002)	(2-1)	(1–0.5) ——— Pc	I	(0.25–0.1)	(0 1-0 05)	0 05-0 02	0 02- 0 002)	(0 2-0.02	(2-0.1)			Pct.	P	 ct. of 76mm
0-7	Ap	7.6	69.9	22.5	1 -	0.1	0.1	0.4	7.0	48.2	21.7	55.4	0.6	<del>                                     </del>		-	<del>                                     </del>	
7-11	A3	6.1	61.5	32.4	-	-	0.1	0.3	5.7	39.7	21.8	45.5	0.4			-	-	
11-15	B21	4.1	46.7	49.2	<b>⊢-</b>	-	-	ļ <u></u> _	4.1	29.7	17.0	33.8	-			-	-	
15-24 24-28	BS:5	6.5	52.4 58.3	42.6 35.2	-	-	0.1	0.2	4.7 6.2	32.2	20.2	37.0	0.3			-	-	
28-38	Clca	7.9	64.9	27.2	0.2a	0.2a	0.3a	0.6a	6.60	37.3 38.0	21.0 26.9	43.6 44.9	0.3			tr.	tr.	
38-48	C2ca	9.8	70.1	20.8	0.6a	0.3a	0.26	0.7ь	7.30	41.3	28.8	48.9	1.8			tr.	tr.	
48-60	СЗса	7.0	73.3	19.7	0.2a	0.2a	0.2b	о.6ъ	5.86	40.9	32.4	47.0	1.2			tr.	tr.	
	6Ala	6Bla	<u> </u>	<u> </u>	  6Elc	   601a	<u> </u>	Bulk densit	<u> </u>	   4100		rater conte	nt		<u> </u>	<u> </u>	ρH	
Depth	Organic	Nitrogen					4Ala			Exten-				4,92	4C1	<u> </u>	I	SCI
(in.)	carbon	Mirrogen	C/M		Carbonate as CaCO <sub>3</sub>	Ext.				sibil			1/3	15-	1/3-to			
,	<u>c</u>				a. vasag	Iron		30-0≡.	Ovez-	ity	Field-	30-Can	Bar		15-Bar			(1:1)
						as Fe	State		Dry	inger	State		Pieces		inger			
	Pct.	Pct			Pct	Pct.	g/cc	g/cc		norizo		Pct,	Pct	Pct.	norizon	<u> </u>		<del> </del>
0-7	1.48	0.120				0.4	1.46	1.35	1.514	.27	12.8	29.5	19.4	10.2	0.8			6.1
7-11	1.13	0.104				0.6	1.48	1.32 1.22d	1.50d	.17	8.1		22.6	14.9	0.4	1		6.1
11-15	0.88			-		0.7		1.220		.52	33.5	35.6	32.0	24.0	0.4			6.4
15-24 24-28	0.57	0.059	10		tr.	0.6	1.72	1.34 1.35	1.84d 1.62d	.90	11.5	30.0 30.6	27.8 29.6	21.9 18.0	0.7	1		7.1 7.6
28-38	0.33				1 1	0.6	1.58	1.28	1.584	.68	8.2	33.4	27.3	15.0	1.6	1		7.9
38-48	0.13	†	1		2	0.6	1.44	1.34	1.43d	.20	9.0	31.6	27.8	13.4	1,9			8.1
48-60	0.10				tr.	0.6	1.35	1.28	1,424	.42	14.8	31.6 34.8	27.2	13.1	2.2			8.1
	 	Extractal	ble bases	5181a.		<u> 6ਜ਼ੀਕ</u>	Cat. Br	h. Caro.		l .					8103		Base sat	turation
	6N2b	602b	6P2a	602a	5Bla		5A3a		t						"-		5C3	
										I								1
Depth (In )	Ca	Mg	Na	ж	Sum	Ext. Acid-	Stam Cat-	NH <sub>L</sub> OAc							Ca/Ng		Stan Cat-	NOTE, CA
			Na	×		Acid-		NE <sub>I</sub> OAc							Cs./Ng		Cat- ions	coec
(In )	Ca	Mg	<u> </u>	<u> </u>	meq/100 g	Acid- ity	Cat- ions	` <del>- •</del>									Cat- ions Pct.	CIEC Pct.
(In ) O-7	C. 11.0	Me 3.2	Na 0.1	1.4	meq/100 g	Acid- ity 4.8	Cat- ions	16.1 20.4							3.4 2.6		Cat- ions Pct. 76	CIEC Pct.
(In )	Ca	Mg	0.1	1.4	meq/100 g	Acid- ity	Cat- ions	16.1							3.4		Cat- ions Pct.	coec
0-7 7-11 11-15 15-24	11.0 13.5	Mg 3.2 5.2	0.1	1.4	meq/100 g 15.7 20.1	Acid- ity 4.8 5.3	Cat- ions 20.5 25.4	16.1 20.4 30.4 29.3	_						3.4 2.6		Cat- ions Pct. 76	98 98
0-7 7-11 11-15 15-24 24-28	11.0 13.5 20.1	3.2 5.2 9.3	0.1 0.2 0.4 0.6 0.7	1.4 1.2 1.9 2.2 2.3	15.7 20.1 31.7	Acid- ity 4.8 5.3 5.1	Cat- ions 20.5 25.4 36.8	16.1 20.4 30.4 29.3 27.6	_						3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	0180 Pet. 98 98 104
0-7 7-11 11-15 15-24 24-28 28-38	11.0 13.5 20.1	3.2 5.2 9.3	0.1 0.2 0.4 0.6 0.7 0.7	1.4 1.2 1.9 2.2 2.3 2.3	15.7 20.1 31.7	Acid- ity 4.8 5.3 5.1	Cat- ions 20.5 25.4 36.8	16.1 20.4 30.4 29.3 27.6 24.2							3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	98 98 98 104
0-7 7-11 11-15 15-24 24-28	11.0 13.5 20.1	3.2 5.2 9.3	0.1 0.2 0.4 0.6 0.7	1.4 1.2 1.9 2.2 2.3	15.7 20.1 31.7	Acid- ity 4.8 5.3 5.1	Cat- ions 20.5 25.4 36.8	16.1 20.4 30.4 29.3 27.6							3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	98 98 98 104
0-7 7-11 11-15 15-24 24-28 28-38 38-48	11.0 13.5 20.1	3.2 5.2 9.3	0.1 0.2 0.4 0.6 0.7 0.7	1.4 1.2 1.9 2.2 2.3 2.3	15.7 20.1 31.7	Acid- ity 4.8 5.3 5.1	Cat- ions 20.5 25.4 36.8	16.1 20.4 30.4 29.3 27.6 24.2 22.5							3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	0180 Pet. 98 98 104
0-7 7-11 11-15 15-24 24-28 28-38 38-48	11.0 13.5 20.1 19.6	3.2 5.2 9.3	0.1 0.2 0.4 0.6 0.7 0.7 1.1 1.3	1.4 1.2 1.9 2.2 2.3 2.3	15.7 20.1 31.7	4.8 5.3 5.1 2.3	20.5 25.4 36.8 34.0	16.1 20.4 30.4 29.3 27.6 24.2 22.5 22.9		lules					3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	Pet. 98 98 304
0-7 7-11 11-15 15-24 24-28 28-38 38-48 48-60	11.0 13.5 20.1	3.2 5.2 9.3	0.1 0.2 0.4 0.6 0.7 0.7 1.1 1.3	1.4 1.2 1.9 2.2 2.3 2.3	15.7 20.1 31.7	Acid- ity 4.8 5.3 5.1 2.3	20.5 25.4 36.8 34.0	16.1 20.4 30.4 29.3 27.6 24.2 22.5 22.9	ate no	lules					3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	0180 Pet. 98 98 104
0-7 7-11 11-15 15-24 24-28 28-38 38-48	11.0 13.5 20.1 19.6	3.2 5.2 9.3	0.1 0.2 0.4 0.6 0.7 0.7 1.1 1.3	1.4 1.2 1.9 2.2 2.3 2.3 2.3	15.7 20.1 31.7	4.8 5.3 5.1 2.3	20.5 25.4 36.8 34.0	16.1 20.4 30.4 29.3 27.6 24.2 22.5 22.9 Carbon Carbon	ste no	lules.					3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	98 98 98 104
0-7 7-11 11-15 15-24 24-28 28-38 38-48 48-60  Depth (in.)	11.0 13.5 20.1 19.6 Ratios	3.2 5.2 9.3 9.3 sto 0	0.1 0.2 0.4 0.6 0.7 0.7 1.1 1.3	1.4 1.2 1.9 2.2 2.3 2.3 2.3	15.7 20.1 31.7	4.8 5.3 5.1 2.3	Cat- ions 20.5 25.4 36.8 34.0 > 50% 5-25%	16.1 20.4 30.4 29.3 27.6 24.2 22.5 22.9 Carbon Carbon	ste no	lules.					3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	98 98 104
0-7 7-11 11-15 15-24 24-28 38-38 38-48 48-60  Depth (in.)	11.0 13.5 20.1 19.6 Ratios	3.2 5.2 9.3 9.3 9.3 Ext. Iron	0.1 0.2 0.4 0.6 0.7 1.1 1.3 45-78au Weater	1.4 1.2 1.9 2.2 2.3 2.3 2.3	15.7 20.1 31.7	4.8 5.3 5.1 2.3	Cat- ions 20.5 25.4 36.8 34.0 > 50% 5-25%	16.1 20.4 30.4 29.3 27.6 24.2 22.5 22.9 Carbon Carbon	ste no	lules.					3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	98 98 98 104
0-7 7-11 11-15 15-24 24-28 28-38 38-48 48-60  Depth ((In.)	11.0 13.5 20.1 19.6 Ratios NEL OAC CEC	3.2 5.2 9.3 9.3 9.3 Ext. Iron .018 .018	0.1 0.2 0.4 0.6 0.7 1.1 1.3	1.4 1.2 1.9 2.2 2.3 2.3 2.3	15.7 20.1 31.7	4.8 5.3 5.1 2.3	Cat- ions 20.5 25.4 36.8 34.0 > 50% 5-25%	16.1 20.4 30.4 29.3 27.6 24.2 22.5 22.9 Carbon Carbon	ste no	lules.					3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	98 98 104
0-7 7-11 11-15 15-24 24-28 28-38 38-48 48-60	11.0 13.5 20.1 19.6 Ratios NEL OAC CEC	3.2 5.2 9.3 9.3 9.3 1to C	0.1 0.2 0.4 0.6 0.7 1.1 1.3 15-Bay Water .45 .46 .49	1.4 1.2 1.9 2.2 2.3 2.3 2.3	15.7 20.1 31.7	4.8 5.3 5.1 2.3	Cat- ions 20.5 25.4 36.8 34.0 > 50% 5-25%	16.1 20.4 30.4 29.3 27.6 24.2 22.5 22.9 Carbon Carbon	ste no	lules.					3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	98 98 104
0-7 7-11 11-15 15-24 24-28 28-38 38-48 48-60  Depth (ln.)  0-7 7-11 11-15 15-24 24-28	Cs 11.0 13.5 20.1 19.6  Ratios NBI, OAc CEC .72 .63 .62 .69 .78	3.2 5.2 9.3 9.3 9.3 9.3 9.3	0.1 0.2 0.4 0.6 0.7 1.1 1.3 Water 45 .46 .49	1.4 1.2 1.9 2.2 2.3 2.3 2.3	15.7 20.1 31.7	4.8 5.3 5.1 2.3	Cat- ions 20.5 25.4 36.8 34.0 > 50% 5-25%	16.1 20.4 30.4 29.3 27.6 24.2 22.5 22.9 Carbon Carbon	ste no	lules.					3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	98 98 104
0-7 7-11 11-15 15-24 24-28 28-38 38-48 48-60	11.0 13.5 20.1 19.6 Ratios NEL OAC CEC	3.2 5.2 9.3 9.3 9.3 1to C	0.1 0.2 0.4 0.6 0.7 1.1 1.3 15-Bay Water .45 .46 .49	1.4 1.2 1.9 2.2 2.3 2.3 2.3	15.7 20.1 31.7	4.8 5.3 5.1 2.3	Cat- ions 20.5 25.4 36.8 34.0 > 50% 5-25%	16.1 20.4 30.4 29.3 27.6 24.2 22.5 22.9 Carbon Carbon	ste no	lules.					3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	98 98 98 104
0-7 7-11 11-15 15-24 24-28 38-48 48-60  Depth (in.)  0-7 7-11 11-15 15-24 24-28 26-38	11.0 13.5 20.1 19.6 Ratios RELOAC CEC	3.2 5.2 9.3 9.3 9.3 9.3 1.00 1.018 1.014 1.014 1.014 1.014	0.1 0.2 0.4 0.6 0.7 1.1 1.3 15-But Water .45 .46 .49	1.4 1.2 1.9 2.2 2.3 2.3 2.3	15.7 20.1 31.7	4.8 5.3 5.1 2.3	Cat- ions 20.5 25.4 36.8 34.0 > 50% 5-25%	16.1 20.4 30.4 29.3 27.6 24.2 22.5 22.9 Carbon Carbon	ste no	lules.					3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	98 98 98 104
0-7 7-11 11-15 15-24-28 28-38 38-48 48-60 0-7 7-11 11-15 15-24 24-28 28-38 33-48	11.0 13.5 20.1 19.6 Ratios NEL OAC CEC -72 .63 .62 .69 .78 .89	3.2 5.2 9.3 9.3 9.3 9.3 100 100 100 100 100 100 100 100 100 10	0.1 0.2 0.4 0.6 0.7 1.1 1.3 Water .45 .49 .51 .51	1.4 1.2 1.9 2.2 2.3 2.3 2.3	15.7 20.1 31.7	4.8 5.3 5.1 2.3	Cat- ions 20.5 25.4 36.8 34.0 > 50% 5-25%	16.1 20.4 30.4 29.3 27.6 24.2 22.5 22.9 Carbon Carbon	ste no	lules.					3.4 2.6 2.2		Cat- 10ms Pct. 76 79 86	98 98 98 104

Soil type: Crete silt loam Soil No.: S60Nebr-18-1

Classification: Maximal Chernozem. Igretion. O.6 mile west and 135 feet south of the northeast corner Sec. 2. TSN. RSW. Clay County. Webraska. Crop: Sorghum 1958-1960, corn 1957. Parent material: Peorian losss. Climate: Subhumid. Physiography: Nearly level losss upland. Relief: Subnormal. Slope: 1 percent. Aspect: Essentially level with 1 percent slope toward the east. Erosion: Slight. Permeability: Moderately slow. Drainage: Moderately well drained. Ground water: Deep. Moisture: Near field capacity. Root distribution: A few roots extended through to the C horizon. Described by: Joseph M. Downs. LSL No. Horizon 0 to 7 inches. Very dark brown (10YR 2/2 moist uncrushed) (10YR 5/2 dry) silt loam, weak fine 14263 Αp granular structure, friable, no effervescence; abrupt smooth lower boundary. 14264 7 to 11 inches. Very dark grayish brown (10YR 3/2 moist uncrushed) (10YR 6/2 dry) silty clayloam, **A**3 weak fine subangular blocky structure, friable, no effervescence; abrupt smooth lower boundary. 11 to 15 inches. Dark brown (10YR 3/3 moist uncrushed) (10YR 4/3 moist crushed) (10YR 6/3 dry) silty clay, moderate fine subangular blocky structure, few thin continuous clay films, firm, no effer-14265 B21 the B3; clear smooth lower boundary.

14266 B22 15 to 24 inches. Dark grayish brown (2.5Y 4/2 moist uncrushed) (10YR 6/3 dry) silty clay, moderate medium angular and subangular blocky breaking to fine subangular blocky, common thin continuous clay films, firm, no effervescence; clear smooth lower boundary.

14267 B3 24 to 28 inches. Dark grayish brown (10YR 4/2 moist uncrushed) (10YR 7/3 dry) heavy silty clay loam, weak coarse subangular blocky structure, few discontinuous clay films, friable, no effervescence; clear smooth lower boundary.

14268 Clca 28 to 38 inches. Yellowish brown (10YR 5/4 moist uncrushed) (10YR 7/2 dry) heavy silt loam, massive,

SOIL NOS. S55Neb-30-1-(1-8) LAB. NOS. 3372-3379

	l	IBla	,	PARTI	CLE SIZ	E DISTRIE	UTION (in	mm.) (p	er cent)	<u>Al</u>	ä. F <del>r</del>	
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY	# 1.000 to 1		2A2 > 2	TEXTURAL CLASS
		2-1	1.0.5	0.5-0.25	0, 25-0, 10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	0.02-0.002		L
0-6	Alp	0.1	-	_	0.2	5.5	69.0	25.2	53.8	20.8	-	sil
6 <b>-</b> 8	A12	0.1	_	_	-	4.5	64.5		48.0	21.0	-	sicl
8-10	АЗ	-	-		-	3.7	60.3			20.8	-	sicl
10-19	B21	-	-	-	-	3.2	49.5	47.3	33.6	19.1	-	sic
L9-27	B22	-	-	-	-	2.8		40.1	36.0	23.9	-	sic
27-39	ВЗса	0.2	0.3	0.1	0.3	3.5			41.3	27.8	-	sicl.
39-49	Cca	0.1	0.1	0.1	0.3	4.1	68.6	. – – • 1	44.8	28.1	-	sil
49-60	C	0.1	0.2	0.2	0.5	3-4	72.0	23.6	45.8	29.9	-	sil
*******	₽Н 8С		ORG	NIC MA		****************	ELECTRI-	6к <u>л</u> а		MOIST	URE TE	NSIONS
	7. 51. 50					EST%	CAL CONDUC-	U <u>rua.</u>			7117-11	4 <b>B</b> C
	1:5	1;10	6 <u>Ala</u> Organic Carbon	NITRO-	Ç/N	EST% SALT (BUREAU CUP)	TIVITY EC × 103 MILLIMHOS	CoCO3 equiv- alent	GYPSUM me,/100g, SOIL	1/10 ATMOS.	1/3 ATMOS,	15 ATMOS.
1:1			*	*			PER CM	96		٠,	*	%
5.6	6.2	6.3	2.02	.158	12.8							10.9
5.4	6.1		1.66		11.8		<u>[</u>	Į	l			13.2
5.7	6.1	6.3	1.40	.124	11.3		İ		į			15.0

Soil type: Crete silt loam

855Nebr-30-1-(1-8) Soil No.:

Location: 1250 feet east and 120 feet north of southwest corner Sec. 2, ToN, R2W, Fillmore County, Nebraska; 1 mile

south and 42 miles east of center of Geneva, Nebraska.

Physiography: Gentle eastward slope of about 1 percent gradient, in broadly undulating losss-mantled plain.

Use: Cultivated, corn.

Collected by: B. H. Williams, J. A. Elder, T. E. Beesely, R. D. Greenawalt, and R. H. Jordan, November 1955.

Described by: B. H. Williams.

Horizon and Mandan Lab. Number

3377

Cca

3378

O to 6 inches. Dark gray to very dark brown (10YR 4/1 dry to 2/2 moist) silt loam; medium fine and very Alp

6 to 8 inches. Dark gray to very dark brown (10YR 4/1 dry to 2/2 moist) silt loam; weak coarse A12 blocky structure separating to moderate fine granules; soft, dry; friable, moist; clear lower boundary. 3373

8 to 10 inches. Dark gray to very dark grayish brown or very dark brown with light sprinkling of **A3** 3374 leached gray silt on peds (10YR 4.5/1 dry to 2.5/2 moist) silty clay loam; strong medium and fine granular and very fine subangular blocky structure; the lower one inch has some of the characteristics of a degrading El; the peds fall apart quite readily when dry or only slightly moist; hard, dry; firm, moist: abrupt lower boundary.

10 to 19 inches. Dark brown to very dark brown or dark brown (10YR 3.5/3 dry to 2.5/3 moist) with 2/2 R21 coating on vertical faces of peds, silty clay; moderate coarse prismatic and strong medium and fine blocky structure; very hard, dry; very firm, moist; noncalcareous; gradual lower boundary. 3375

19 to 27 inches. Pale brown to brown (10YR 6/3 dry to 5/3 moist) with 5/2, dry, and 4/2, moist, coatings on vertical faces of peds, silty clay; weak to moderate coarse prismatic and strong medium and coarse blocky structure; very hard, dry; very firm, moist; a few very fine dark brown soft iron-manganese specks; fine roots common in this horizon and in the ones above; noncalcareous; clear lower boundary. TOO 3376

27 to 39 inches. Pale yellow to light yellowish brown (2.5Y 7/3 dry to 6/3 moist) silty clay losm; a few faint fine yellow and brown mottles and very fine dark brown iron-manganese soft concretions; weak coarse and medium blocky structure with some stronger faces on the peds along the more pronounced vertical planes; hard, dry; slightly firm, moist; slightly calcareous throughout; soft and hard lime concretions and soft thread lime and very thin lime coating on some of the peds; a few roots and many root channels and pores; gradual lower boundary.

39 to 49 inches. Pale yellow (2.5Y 8/3 dry to 7/3 moist) silt loam; common faint fine pale yellow to strong brown mottles; massive except an occasional widely-spaced crack along which some subangular coarse blocks have formed; slightly hard, dry; friable, moist; calcareous except in spots; lime mainly in fine specks, threads, and soft concretions; a few fine roots and many root channels and pores in this horizon and the one below; gradual lower boundary.

49 to 60 inches. White to pale yellow (2.5Y 8/2 dry to 7/3 moist) silt losm; common faint to prominent yellowish brown, brown, and strong brown mottles and streaks of iron staining; massive; soft, dry; friable, moist; generally noncalcareous except on scattering of lime concretions that are 1/8- to 1/4-3379 inch in dismeter.

OIL SURVEY LABORATORY Lincoln, Nebr. 8/1/57

SOIL TYPE Crete LOCATION Fillmore County, Nebraska silt loam

		IRls		PART	CLE SIZ	E DISTRIE	UTION (in	mm.) (p	er cent)	Al	3 .	; : !
DEPTH INCHES	HORIZON		1	7	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURA CLASS
		2-1	1-0.5		0.25-0.10		0.05-0.002			002-0002		
0-5	Alp	-	0.1	0.1	0.3	5.0				20.8	••	sil
5-8	A12	-	0.1	-	0.1	3.6				23.1	-	sicl
8-10	A3	<b>-</b>	0.1	-	-	2.6	57.5			23.0	-	sicl
10-21	B21	0.1	0.1	-	0.1	2.0			27.9		-	sic
21-25	B22		0.1	0.1	0.2	2.0	54.5			27.2		sic
<b>25-</b> 37	ВЗса	0.6	0.4	0.2	0.3	3.1		33.2		28.2	-	sicl
37-48	Cca	0.2	0.4	0.2	0.3	3.6			43.2	30.3	-	sil
48-60	С	0.4	0.2	0.1	0.3	4.0	71.3	23.7	45.4	30.1	-	sil
1 <del>4984</del> =7 <del>40</del> 43 <del>81</del> 415844	ьн 8с	 Тя		NIC MA		****************	ELECTRI-	6Ela		MOIST	URE TE	NSIONS
	[		6Ala			EST% SALT	CAL CONDUC-					4B2
	1;5	1:10	ORGANIC CARBON	NITRO-	C/N	(BUREAU CUP)	TIVITY EC×103 MILLIMHOS		GYPSUM me./100g. SOIL	1/18 ATMOS.	1/3 ATMOS,	15 ATMOS.
1:1			%	%			PER CM #25-C.	%		*	%	- 5
5.6	5.9	6.0	1.96	.160	12.2							10.6
5.6	6.0		1.79		11.6			İ				14.0
5.8	6.2	6.4	1.47		11.4							17.0
6.8	7.3	7.5	1.13		12.4							22.1
7.6	8.3	8.5	0.63	.065	9.7			2				20.1
7.6	8.0		0.33	_				4				16.8
7.5	8.0		0.76					2	i			15.0
7.9	8.6	8.9	0.12					3		i,		14.4
C 43			***************	***********			******************				***************************************	
5Ala CATION	6N21	****	TABLE	6P2s		BASE SAT.			r*			MOISTUR

Soil type: Crete silt loam S55Nebr-30-2-(1-8) Soil No.:

Togation: 1450 feet north and 200 feet west of southeast corner Sec. 33, TSN, RIW, Fillmore County, Nebraska; one mile east and 1-3/4 miles south of Exeter, Nebraska.

Physiography: Gently undulating losss-mantled plain on eastward slope of less than one percent gradient. Surface drainage is into shallow small and large depressions and into shallowly entrenched drains.

Use: Cultivated, corn.
Collected by: B. H. Williams, J. A. Elder, T. E. Beesley, R. D. Greenawalt and R. H. Jordan, November 1955.
Described by: B. H. Williams.

Horizon and Mandan Isb. Number

O to 5 inches. Dark gray to very dark brown (10YR 4/1 dry to 2/2 moist) silt loam; medium fine and αIA 3380 very fine granular structure; soft, dry; friable, moist; noncalcareous; abrupt lower boundary.

5 to 8 inches. Dark gray to black or very dark brown (10YR 4/1 dry to 2/1.5 moist) silt loam; weak 3381 coarse blocky separating easily to fine granular structure; slightly hard, dry; friable, moist; noncalcareous; clear lower boundary.

8 to 10 inches. Dark gray or gray to very dark brown (10YR 4.5/1 dry to 2/2 moist) silty clay loam; A3 3382 strong fine granular and very fine subangular blocky structure; aggregates fall apart easily when dry and moist; the individual peds are hard when dry and firm when moist and thinly coated with leached gray silt grains that are apparent only when the soil is dry; noncalcareous; clear lower boundary.

10 to 21 inches. Very dark grayish brown to very dark brown or dark brown (10YR 3/2 dry to 2/2.5 moist) B21 silty clay; moderate coarse prismatic and strong fine and medium blocky structure; very hard, dry; 3383 very firm, moist; a very few very fine strong brown and dark brown iron-manganese soft concretions; noncalcareous; gradual lower boundary.

21 to 25 inches. Light brownish gray to dark grayish brown (2.5Y 6/2 dry to 4/2 moist) silty clay; 122 3384 moderate coarse prismatic and strong fine and medium blocky structure; very hard, dry; very firm, moist; a few very fine iron-manganese soft concretions which are most evident on cut faces of peds; slightly calcareous in the lower 2 or 3 inches including a few fragments of brown-stained lime concretions; plant roots common in this and in the horizons above; clear lower boundary.

25 to 37 inches. Light gray to light clive gray (5Y 7/2 dry to 6/2 moist) heavy silty clay loam; a few ВЗса 3385 faint to prominent fine brown and strong brown mottles and dark brown soft iron-manganese spots and soft concretions; moderate medium and coarse blocky structure; a few well-defined vertical cracks that form prisms 10 or more inches in diameter; slightly darker coating on prism faces than on remainder of ped faces; hard, dry; firm, moist; calcareous, with weak effervescence throughout; many soft and hard lime concretions that effervesce violently with dilute HCl; a few very fine plant roots and root channels: gradual lower boundary.

37 to 48 inches. Pale yellow to light yellowish brown (2.5Y 7/3 dry to 6/3 moist) silty clay loam; 3386 common fine and coarse yellowish brown, strong brown, and dark brown mottles and a few rounded tubular soft to slightly hard iron concretions; massive but separates along vertical planes into very coarse prisms; slightly hard, dry; friable, moist; calcareous, including a few hard and soft lime concretions and much thread lime; strong effervescence; root channels common but no roots seen in this horizon and the one below; gradual lower boundary.

48 to 60 inches. Pale yellow to light yellowish brown (2.5Y 7/3 dry to 6/3 moist) silt loam; common 3387 fine to coarse yellowish brown and strong brown mottles and dark brown soft iron segregations; massive; soft, dry; friable, moist; calcareous including a few threads, seams and spots of segregated lime; weak effervescence between lime spots.

SOIL TYPE Crete LOCATION Saline County, Nebraska

SOIL NOS. \$55Neb-76-1-(1-9) LAB. NOS. 3354-3362

silt loam

	<u> </u>	lBla	******************	PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	musuumus er cent)	"3 <b>A</b> I""		
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURA CLASS
		2-1	1-0.5	0.5-0.25	0. 25-0. 10	0.10-0.05	0.05-0.002	< 0.002	0, 2-0,02	Q02-Q002		L
0-6	Alp	-	0.1	0.1	0.3	3.6	71.3	24.6	51.0	24.1	_	sil
6-10	AL2	_	0.1	0.1	0.2	3.4	68.2	28.0	47.4	24.3	_	sicl
10-13	AB	_	0.1	0.1	0.1	2.5	61.4	35.8		24.6	_	sicl
13-19	B21	_		_	0.1	2.1	48.9			20.3	_	sic
19-26	B22	_	ļ <b>.</b> ;	_	-	2.5		45.2		23.3		sic
	B23	_	_	_	0.1	2.6	55.9	41.4		24.4	_	sic
	ВЗса	0.7	0.2	0.1	0.2	2.6	60.6	· -	35.7	27.6	-	sicl
7	Clca	0.i	0.1	0.1	0.3	2.7	64.3		40.4	26.8		sicl
52-60	C2	-	0.1	0.1	0.4	2.3	63.7	33.4	ī.	27.1	_	sicl
-	i		1 .		]				3	! '		Ž
H01343414441441	₽Н 8С	la	ORG	NIC MA	TTER	***************************************	ELECTRI-	6Ela		MOIST	URE TE	NSIONS
. # 4 4 4 4 4 7 1	1,5		6ALA ORGANIC CARBON	6Bla	C/N	EST% SALT (BUREAU CUP)	CONDUC- TIVITY EC×103	CoCO3	GYPSUM me./100g. SOIL		1/3	4B2 15 ATMOS.
	133	7.10	CARDON	•	<b>J</b> .	4017	MILLIMHOS PER CM #25-C.	<b>4.4.</b>	30.2			i
ِالْأِلِي				- %			925°C.	<u> </u>			\$	30.0
5.6	5.8		1.77		12.5			i	İ			10.0
5.6	5.9		1.65	,	12.0				İ			11.6
5.8	6.2		1.36		11.1				į			15.1
6.2	6.5		0.94	j ·	10.7				į			20.4
6.7	7.0		0.58	.059	9.8				Ì	į		19.4
7.2	7.6		0.43	ţ				١.	1			18.9
7.5	8.1		0.24	ĺ	ļ			1				16.6
7.4	7.8		0.16	1			Ī	1				15.6
7.2	7.8	7.8	0.14	]			<u> </u>	1	ļ	!		15.8
immum 5Ala			TABLE			BASE	***************	ķ	***************************************			\$1196914114144 <b>0016</b> 00
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exchange Capacity NH4Ac	Co	Mg	н	No	K	501			Ī			SATU- RATION
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	;	5.3	•		<u> </u>		1	Ì	1	ŧ		1
32.1	19.2	8.1		0.4	1.1	90				•		
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32.1 32.5 30.6 28.5	19.2 20.4	8.1 8.5 8.6 8.7 7.6		0.4 0.5 0.6 0.7 0.8	1.1 1.1 1.1 1.1	90 94			· · · · · · · · · · · · · · · · · · ·	90 r.m.).		Market a capaca (2 <sup>11-2</sup> ) — V — Ver f <b>all</b> in the constraint of the
32.1 32.5 30.6 28.5	19.2 20.4	8.1 8.5 8.6 8.7 7.6		0.4 0.5 0.6 0.7 0.8	1.1 1.1 1.1 1.1	90 94			anning urffen ein nassa kan satus antineren kapa un met sagrapa	00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		<b>1906. o 1999.00</b> S
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32.1 32.5 30.6 28.5	19.2 20.4	8.1 8.5 8.6 8.7 7.6		0.4 0.5 0.6 0.7 0.8	1.1 1.1 1.1 1.1	90 94			ederlege-valler et de verker et en rederlege van de verker de verker de verker de verker de de verker de de ve	44-144), 14-144, 14-144, 14-144, 14-144, 14-144, 14-144, 14-144, 14-144, 14-144, 14-144, 14-144, 14-144, 14-14		de de s'alter en la transportation de la cherce de pagga (de,, d.,) de tendos nadem
32.1 32.5 30.6 28.5	19.2 20.4	8.1 8.5 8.6 8.7 7.6		0.4 0.5 0.6 0.7 0.8	1.1 1.1 1.1 1.1	90 94						ім 1666 (1841 р.). — Д., , , , , , , , , , , , , , , , , , ,

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41
Soil type: Crete silt loam
               S55Nebr-76-1-(1-9)
Soil No .:
              ் <sub>ச</sub>ிர்த்த ஆருந்தி இதி
            west of Wilber, Nebraska, across road from west entrance to cemetery.
Physiography: Nearly level loss plain; less than 1 percent slope to the south but enough slope to give adequate
                 surface drainage.
Use: Cultivated, corn.
Collected by: B. H. Williams, J. A. Elder, T. E. Beesley, R. D. Greenawalt and R. H. Jordan, November 1955.
Described by: B. H. Williams.
Horizon and
Mandan
Lab. Number
              0 to 6 inches. Dark gray to very dark brown (10YR 4/1 dry to 2/2 moist) silt loam; weak very fine
Alp
              granular; soft, dry; very friable, moist; noncalcareous; abrupt lower boundary.
3354
              6 to 10 inches. Dark gray to very dark brown (10YR 4/1 dry to 2/2 moist) heavy silt loam or silty clay
A12
              loam; breaks out in medium and coarse blocks but separates into weak thick plates (tillage compactions)
3355
              and moderate fine granules; hard, dry; friable, moist; noncalcareous; clear lower boundary.
              10 to 13 inches. Very dark gray to very dark brown with faint gray sprinkling of leached silt on surface of dry peds (10YR 3/1.5 dry to 2/2.5 moist) silty clay loam; moderate fine granular in upper part
AB
3356
               grading to strong very fine subangular blocky structure in the lower part; hard, dry; friable, moist;
              noncalcareous; abrupt lower boundary.
              13 to 19 inches. Grayish brown or dark grayish brown to dark brown (10YR 4.5/2.5 dry to 3/3 moist)
R21
              silty clay; moderate coarse prisms and strong coarse blocks separating with moderate pressure into
3357
              strong fine blocks; very hard, dry; very firm, moist; many very fine dark brown iron-manganese soft
              concretions; noncalcareous; gradual lower boundary.
              19 to 26 inches. Brown to dark brown (10YR 5/3 dry to 3/3 moist) silty clay; moderate coarse prisms and blocks separating to strong fine blocks; very hard, dry; very firm, moist; many fine dark brown iron-
B22
3358
              manganese soft concretions; noncalcareous; gradual lower boundary.
                                   Tolla busses to breeze (2010-612 Avec to -112 -- 1-4) -- 174- - 2010 -- 12 -- 12-12
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- 3359 moderate to strong coarse blocky structure; very hard, dry; very firm, moist; iron-manganese concretions as noted in horizons above; noncalcareous; living and dead plant roots common in this horizon and horizons above; clear wavy lower boundary.
- 32 to 42 inches. Pale yellow to light olive brown (2.5Y 7/3 dry to 5/4 moist) silty clay losm; moderate ВЗса medium and fine blocky structure with better-defined vertical than horizontal faces; a few very fine 3360 dark brown iron-manganese soft concretions throughout the horizon; hard, dry; friable, moist; calcareous, with many white soft and hard lime concretions; only weak effervescence between lime spots; only a few plant roots present; old root channels and pores common; clear wavy lower boundary.
- 42 to 52 inches. Fale yellow to light olive brown (2.5Y 7/3 dry to 5/4 moist) heavy silt loam or Clca silty clay losm; a few faint fine gray and yellowish brown mottles and very fine dark brown iron-3361 manganese soft concretions; mostly massive but an occasional vertical cracking plane shows slight dark-

	SOIL	SURVEY	LABORATOR	Y Lincoln, Nebr.	8/1/57	- <del></del>
	SOIL	TYPE Cr	ete 1t loam	_OCATION_Seline	County, Nebraska	^****** 4 <b>518 6184 6 544 68</b> **
	₹AII	NOC .	555Neb <u>-76-2-(1-9</u> )	רשא"ויסֿב	3363-3372	
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Soil type: Crete silt loam 855Nebr-76-2-(1-9) Soil No.:

Iccation: 1250 feet south and 100 feet west of northeast corner Sec. 29, T7N, R+E, Saline County, Nebraska.

Physiography: About 1 percent north slope in broad, undulating losss-mantled plain.

Use: Cultivated, grain sorghum.
Collected by: B. H. Williams, J. A. Elder, T. E. Beesley, R. D. Greenawalt, and R. H. Jordan, November 1955.
Described by: B. H. Williams.

Horizon and Mandan Lab. Number

0 to 5 inches. Barkgray to very dark brown (10YR 4.5/1.5 dry to 2/2 moist) silt loam; moderate fine Alp 3363 and very fine granular structure; soft, dry; friable, moist; noncalcareous; abrupt lower boundary.

A12 5 to 8 inches. Dark gray or dark grayish brown to very dark brown (10YR 4/1.5 dry to 2/2 moist) heavy 3364 silt loam; moderate fine granular structure; slightly hard, dry; friable, moist; noncalcareous; clear lower boundary.

8 to 11 inches. Very dark grayish brown to very dark brown with gray sprinkling of leached silt on surface of dry peds (10YR 3/2 dry to 2/2.5 moist) silty clay loam; strong fine granular and very fine 3365 subangular blocky structure; hard, dry; friable, moist; noncalcareous; clear to abrupt lower boundary.

B21 11 to 21 inches. Dark grayish brown to dark brown (10YR 4/2.5 dry to 3/3 moist) silty clay; moderate 3366 coarse prismatic and strong fine blocky structure in upper part and strong medium blocky structure in lower part; very hard, dry; very firm, moist; a few very fine dark brown and strong brown iron-manganese soft concretions; noncalcareous; many plant roots in this horizon and the horizons above; gradual lower boundary.

21 to 31 inches. Grayish brown or brown to dark grayish brown or dark brown (10YR 5/2.5 dry to 3.5/2.5 R22 3367 moist) silty clay; moderate coarse prismatic and strong medium and coarse blocky structure; very hard, dry; very firm, moist; a few very fine dark brown iron-manganese soft concretions; noncalcareous; plant roots common; gradual lower boundary.

B23 31 to 42 inches. Pale brown to brown (10YR 6/3 dry to 5/3 moist) heavy silty clay loam; weak coarse 3368 prismatic and moderate coarse blocky structure; very hard, dry; firm, moist; a few very fine dark brown iron-manganese soft concretions; noncalcareous; plant roots few and old root channels common; clear wavy lower boundary.

42 to 53 inches. Fale yellow to light olive brown (2.5Y 7/4 dry to 5/4 moist) silty clay loam; a few ВЗса faint fine gray mottles and a few very fine dark brown iron-manganese soft concretions; moderate 3369 medium coarse blocky structure with strongly-defined faces on blocks along some of the vertical cracking planes; hard, dry; firm, moist; soft and hard lime concretions common but the soil mass is generally noncalcareous; a few fine roots and many old root channels and pores; gradual wavy lower boundary.

53 to 57 inches. Pale yellow to light yellowish brown or light clive brown (2.5Y 7/4 dry to 5.5/4 moist) heavy silt losm or silty clay losm; massive except for a few widely-spaced vertical cracks; Coa 3370 hard, dry; friable, moist; a few faint fine gray mottles and very fine dark brown iron-manganese soft concretions; calcareous; effervesces mainly on spots, streaks, and soft and hard lime segregations; few or no living roots but old root channels common; gradual lower boundary.

57 to 62 inches. Pale yellow to light yellowish brown (2.5Y 7/4 dry to 6/4 moist) heavy silt loam: 3371 massive except an occasional widely-spaced vertical crack; a few faint fine gray and yellowish brown mottles; hard, dry; friable, moist; noncalcareous except an occasional fine speck that will effervesce with dilue ECL; no roots observed, but old root channels and tube-like pores are common.

Horizons Alp, B21, B22 and B3ca were sampled for Bursau of Public Roads.

SOIL SURVEY LABORATORY Mancoln, Nebr. December 1959

OIL TYPE Crofton LOCATION Dixon County, Nebraska silty clay loam, eroded

SOIL NOS. S59Nebr-26-3-(1-6) LAB. NOS. 11386-11391

424 <del></del>		1Bla	46 p ( p ( p ( p ( p ( p ( p ( p ( p ( p	PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent)	3A1	H111411141414141	
DEPTH INCHES	HORIZON	VERY COARSE SAND 2-1	COARSE SAND 1-0.5		FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	\$11.T 0.05-0.002	CLAY < 0.002	0. 2-0.02	<b>Q</b> 02- <b>Q</b> 002	2A2 > 2 (<1.9mm)	TEXTURAI CLASS
0-6 6-12 12-20 20-36 36-48 48-60	# # # # # # # # # # # # # # # # # # #	0.1ъ	0.2a 0.1a 0.1b 0.1b 0.1b	0.1a 0.1b 0.1b	0.7a 0.7b	8.7ª 8.2b 9.5b 13.7b	66.2 66.3 68.0 68.0 65.4 66.8	24.4 24.0 22.9 21.3 20.0 20.4	55.0 56.6 56.6 60.8	19.8 18.9 20.1 17.3 17.4 17.0	er. Tr. Tr. Tr.	sil sil sil sil sil
8Cla	pН			NIC MA		Free Iron	ELECTRI- CAL CONDUC- TIVITY EC-103	6Ela CeCO3	GYPSUM		URE TE	4 <b>B</b> 2
	1:5	1:30	ORGANIC CARBON	NITRO- GEN	C/N	Fe <sub>2</sub> 0 <sub>3</sub> %	EC = 103 MILLIMHOS PER CM 425-C.	equiv- clent	me./100g. SOIL	ATMOS.	1/3 ATMOS.	15 ATMOS.
8.0 8.0 8.0 8.1 8.2 8.2			0.34 0.23	0.115 0.045 0.035 0.027	9•7 8	.6Cla 1.2 1.3 1.3 1.2 1.2	773-743	8 9 9 8 8		*	*	11.0 10.4 10.6 10.0 9.7 9.4
5Ala CATIGN EXCHANGE CAPACITY NEI <sub>II</sub> AC	Ca Ca	602b <b>44</b>	TABLE OHIA	6P2a No		BASE SAT. NH <sub>L</sub> AC EXCH.	Base Sat. % on Sum Cations	Bases	Sum Ext. Cat- ions	Ce <sub>v</sub> /Mg	emelatroundstoin	MOISTURE AT SATU- RATION
18.6 17.2 17.6 16.8 16.8 16.8	y carb	3.2 4.3 5.0 6.3 7.4				e concr	· (Caco	3?)				

Soil type: Crofton silty clay loam, eroded

Soil No.: S59Nebr-26-3-(1-6)

Location: 750 feet south and 600 feet east of northwest corner Sec. 22, T28N,

R4E, Dixon County, Nebraska. Northeast Nebraska Experiment Station.

Physiography: Rolling loess hills.

Relief: 50 to 100 feet.

Slope: 10 percent south, convex. Parent material: Peorian loess.

Drainage: Well.

Permeability: Moderate. Iand use: Cultivated.

Described by and date: J. V. Drew and J. A. Elder, June 26, 1959.

Lincoln			
Lab. No.	Horizo	n Depth	
11386	<b>A</b> p	0-6"	Very dark grayish brown (10TR 3/2 moist) silty clsy loam. Weak fine and very fine granular structure. Friable moist, hard dry. Violent effervescence, scattered hard lime concretions. Abrupt smooth boundary.
11387	AC	6-12"	Dark brown (10YR 4/3 moist) silty clay loam. Weak fine subangular blocky structure. Friable moist, hard dry. Numerous hard lime concretions 1/8 to 3/8" in diameter. Violent effervescence. Clear wavy boundary.
11388	e <sup>3</sup>	12+20"	Dark brown (10Y 4/3 moist) crushes to (10YR 5/3 moist) silty clay loam. Weak coarse subangular blocky structure. Very friable moist, slightly hard dry. Few faint medium gray mottles and few distinct fine yellowish brown and brown iron stains. Violent effervescence; scattered hard lime concretions 1/8 to 1/2" in diameter. Gradual smooth boundary.
11389	c <sub>2</sub>	20-36#	Light olive brown (2.57 5/3 moist) silty clay loam. Weak coarse prismatic structure. Very friable moist, slightly hard dry. Common fine, distinct strong brown and dark brown iron stains. Violent effervescence; few scattered lime concretions and small pores and openings filled with lime. Gradual smooth boundary.
11390	<b>c</b> <sub>3</sub>	36-48"	Similar to horizon above. Consistence is soft dry. Dark brown iron stains are common, distinct, medium. Gradual

11391 G, 48-60" Light olive brown (2.5Y 5/3 moist) silty clay loam. Massive.

smooth boundary.

	SOIL SURVEY LABORATORY Lincoln, Nebr. May 1959	
	SOIL TYPE Dawes LOCATION Deuel County, Nebraska	
	SOIL NOS. S58Nebr-25-3-(1-7) LAB. NOS. 9403-9409	
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Soil type: Dawes loam

Location: .2 mile east and 180 feet south of northwest corner Sec. 4, T12N,

R45W; approximately 3 miles south and 1 mile east of Chappell,

Deuel County, Nebraska.

Physiography: Loess-covered gravel plain.

Relief: Nearly level.

Slope: Less than 1 percent.

Parent material: Loess over Pleistocene gravels.

Drainage: Well drained.

Permeability: Moderately slow.

Salt or alkali: None. Land use: Wheat 1958.

Climate: Average annual precipitation 18.5 inches; average annual temperature 49°F. Collected by and date: John Elder. W. McKinzie and Robert Jordan. Oct. 23. 1958.

Lab.

No. Horizon

9403 Alp 0-6", Grayish brown (10YR 5/2dry) to very dark grayish brown (10YR 3/2 moist) loam; weak coarse subangular blocky; dry slightly hard, moist very friable; noncalcareous; abrupt smooth boundary.

9404 A2 6-3", Gray (10YR 6.5/1 dry) to dark gray (10YR 4/1 moist) very fine sandy loam; weak medium subangular blocky; dry slightly hard, moist very friable; noncalcareous; abrupt smooth boundary.

9405 B2 8-16", Dark grayish brown (107R 3.5/2) to very dark brown (10YR 2/2 moist) silty clay loam; moderate medium and coarse columnar breaking to moderate fine and medium blocks; dry hard, moist firm; noncalcareous; clear smooth boundary.

9406 B3 16-24", Light brownish gray (10YR 6/2 dry) to dark grayish brown (10YR 4/2 moist) silt loam; weak coarse prismatic; dry soft, moist very friable; violent effervescence; gradual smooth boundary.

9407 Cl 24-32, Light gray (10YR 7/2 dry) to brown (10YR 5/3 moist) silt loam; massive; dry soft, moist very friable; violent effervescence; gradual smooth boundary.

9408 C2 32-40", Light gray (10YR 7/2 dry) to brown (10YR 5/3 moist) silt loam; massive; dry soft, moist very friable; violent effervescence; abrupt smooth boundary.

9409 U 40-51", Fine to coarse Pleistocene gravels, well rounded.

scattered gravels throughout the profile. Horizons Alp, B2 and C1 sampled for Bureau of Public Roads.

SQIL SURVEY LABORATORY Lincoln, Nebr. May 1959

SOIL TYPE Dawes LOCATION Deuel County, Nebraska

SOIL NOS. S58Nebr-25-4-(1-7) LAB. NOS. 9410-9416

19583916161611614619391	1264 <b>0</b> 1274 <b>0</b> 1744	lBla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent)	3 <u>Al</u>		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
DEPTH INCHES	HORIZON	VERY COARSE SAND 2-1	CCARSE SAND 1-0.5	MEDIUM SAND	FINE SAND	VERY FINE \$AND 0.10-0.05	SILT 0.05-0,002	CLAY < 0,002	0.2.0.02	<b>0.02-0.00</b> 2	<b>&gt;</b> 2	TEXTURAL CLASS
0-5 5-7 7-14 14-17 17-25 25-33 33-44	Alp A2 B2 B3 C1 C2 D	3.4 4.2 0.6 0.3 0.1 1.1b	3.5 3.6 0.7 0.4 0.3 0.7b 23.9	2.3 2.6 0.5 0.2a 0.2b 0.5b	3.4 4.0 1.1 0.8a 1.0b 1.4b 25.7	14.5 15.3 8.5 13.9a 20.4b	55.3 57.7 38.8	17.6 12.6 49.8 21.5 12.8 11.0	51.7 54.8 34.1 50.8 61.3 65.3 14.5	19.8 20.1 13.8 26.5 25.0 20.9	9 Pr - 1 Pr	sil sil c sil sil sil cos
8 <b>Cla</b>	pH 1:5	1:10	ORGA 6ALa ORGANIC CARBON	NITRO-		8A2 EST% SALT (BUREAU CUP)	ELECTRI- CAL CONDUC- TIVITY EC-103 MILLIMHOS PER CM 8AJA	eguiv-	GYPSUM me./160g. SOIL		URE TE	NSIONS 432 15 ATMOS.
6 l			1 10		10.2	<0.20			j			8.0

Soil type: Dawes loam

Soil No.:

358Nebr-25-4-(1-7)

Location:

.2 mile south and 180 feet west of northeast corner Sec. 6, Tl2N,

R45W: approximately 3.5 miles south and .5 mile west of Chappell,

Deuel County, Nebraska.

Physiography: Loess-covered gravel plain.

Relief: Slight.

Slope: Less than 1 percent, plain.

Parent material: Loess over Pleistocene gravels.

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Salt or alkali: None. Land use: Wheat 1958.

Climate: Average annual precipitation 18.5 inches; average annual temperature 49°F. Collected by and date: John Elder, W. McKinzie and Robert Jordan, Oct. 23, 1958.

Lincoln

Lab.

No. Horizon

0-5", Grayish brown (10YR 5/2 dry) to very dark grayish brown 91110 Alp

(10YR 3/2 moist) loam; weak coarse subangular blocky; dry slightly

hard, moist very friable; noncalcareous; abrupt smooth boundary,

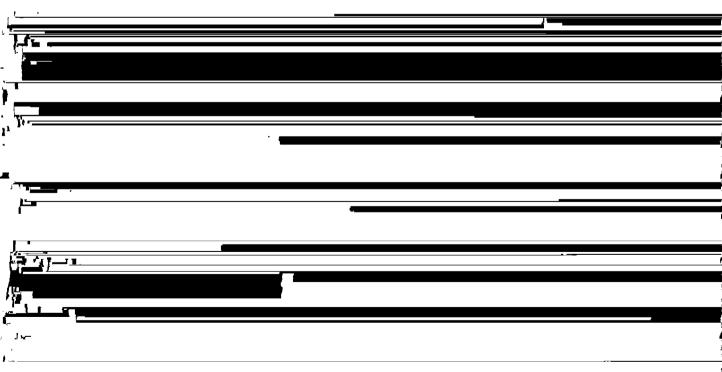
C 78 Owned to have 12000 C/O Just to James and the trainer 12000

SOIL SURVEY LABORATORY
Mandan, North Dakota

SOIL TYPE Exline silt loam

SOIL NO. \_ S51Nebr-40-7-(1-8)

			1Bla		PARTIC	CLE SIZE D	STRIBUTIO	N (in m	m.) (p	er cent) 3	A.L		
LABORATORY Number	DEPTH IN INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	SAND	VERY FINE SAND		CLAY	0 00 0 00	0.2-	2A2 > 2	TEXTURAL CLASS
			2.1	1-0.5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	<0.002	0.02-0.002	0.02 (	(191011)	
917	0-5	Al	0.1	0.3	0.8	3.2	16.5	60.4	18.7	18.3	60.3	_	sil
918	5-10	A2	0.1	0.3	0.6	1.9	18.7	59.5	18.9	16.7	62.5	-	sil
919	10-18	B2	-	0.3	0.7	1.8	13.7	46.3	37.2	15.3	45.8	-	sicl
920	18-21	<b>B</b> 3	-	0.2	0.5	0.9	11.9	42.4	44.1	15.3	39.5	_	sic
921	21-28	Beacs	0.7	0.7	0.6	1.2	14.9	48.0	33.9	19.0.	44.5	1 a	sicl
922	28-42	C1	0.8	0.6	0.6	1.1	15.3	52.7	28.9	20.9	47.7	3 a	sil
923	42-47	C2	2.3	2.3	1.3	1.9	15.1	53.5	23.6	22.4	47.3	9 a	sil
924	47-60	<b>C3</b>	0.5	0.8	0.6	1.2	18.3	54.3	24.3	20.1	53.2		sil
n		pH		ORG	ANIC MAT	 FTER	8 <u>A</u> 2	ELECTRICAL CONDUC-	CaCO3	GYPSUM	MOIS	TURE TEN	SIONS
				×	×		SALT	TIVITY				(per cent)	
	SATURATED PASTE	1:5	1:10	ORGANIC	~ NITROGEN	C/N	(BUREAU	EC x 10 3	equivalent per cent	me./100g	1/10 ATMOS.	1/3 ATMOS.	15 ATMOS.
	8c1b	8Cla	8cla			1	CUP1	PER CM SAla	6ла	SOIL 6Fla		.,,,,,,,,,,,	4B2
	5.8	6.1	6.7	3.16			_	0.6	tr	_			10.9
	6.0	6.8	7.1	1.59			_	0.7	tr	_			9.0
	7.2	8.2	8.6	1,21			l - 1	ا 5.د	tr_	_			19.4



Soil type: Exline silt loam

Soil No.: Silvebr-40-7-(1-8)
Location: SWI/4, SE1/4, Sec. 10, Tilm, Rilw, Hall County, Nebraska.

Vegetation: Native pasture; saltgrass, grama, and western wheat grass dominant.

Parent material: Loss.
Physiographic position: Undulating terrace with numerous micro depressions.

Topography: Level. Slope: Less than 1 percent. Frosion: None or slight.
Drainage: Very slow.
Moisture: Moist.
Stoniness: None.

Root distribution: Good. Described by: B. H. Williams. Date: October 8, 1951.

Mandan

distinct mottlings.

lab.No. 917	Horizon Al	0-5 inches. Silt losm; dark gray (IOTR 4/1 dry) to very dark brown (1OTR 2/2 moist); fine granular; soft; friable.
918	A2	5-10 inches. Silt loam; grayish brown (10YR 5/2 dry) to very dark gray (10YR 3/1 moist) silt loam, coarse blocky or prismatic primary and fine blocky secondary breakage. The structure aggregates are coated with lighter-colored material than the base color above.
919	B2	10-18 inches. Silty clay; very dark brown (10YR 2/2 dry) and only slightly darker when moist, silt clay; strongly developed coarse columnar-prismatic structure with secondary breakage to medium and fine blocky. The structure aggregates are heavily coated with black shiny organic colloids. The columns become ill-defined in their lower parts and grade into the next layer below.
920	183	18-21 inches. Light brownish gray (2.5Y 6/2 dry) to dark grayish brown (2.5Y 4/2 slightly moist), silty clay or heavy silty clay losm; medium to fine blocky; firm moist, moderately hard dry; moderately plastic wet.
921	Bca-cs	21-28 inches. Silty clay loam; light gray (5Y 7/2 dry) to olive gray (5Y 5/2 moist) silty clay loam; no well defined structure but crushes to fine subangular blocky mass; very high in salts, probably gypsum and scattered hard lime carbonate concretions. The soil mass generally is not calcareous.
922	Cl	28-42 inches. Silt loam; pale yellow (5Y 6.5/3 dry) to pale clive (5Y 5.5/3 moist); massive friable; calcareous, including small and large (1-inch diameter) lime concretions.
923	C2	42-47 inches. Silt loam; light gray (5Y 7/2.5 dry) to olive gray (5Y 5/2.5 moist) silt loam; massive friable; strongly calcareous, including moderate abundant lime concretions, some up to 2 or 3 inches in their largest diameters. Common, reddish brown and yellowish red, small,

47-60 inches. Silt loam; pale yellow (5Y 7/3 dry) to olive (5Y 5/3 moist); massive friable; moderately calcareous; scattered lime concretions; numerous mottlings, marblings and staining of yellow and brown coloration. 924 ¢3

Note: Sampled from Exline soil complex area of about mid-position in the micro topography.

SOIL SURVEY LABORATORY Lincoln, Nebr. May 1959 silt loam LOCATION Deuel County, Nebraska SOIL TYPE Goshen SOIL NOS. S58Nebr-25-1-(1-7) LAB. NOS. 9389-9395 PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 lBla HORIZON COARSE COARSE MEDIUM FINE SAND SAND VERY FINE SAND SILT CLAY > 2 0.5-0.25 0.25-0.10 0.10-0.05 0.05-0.002 < 0.002 0.2-0.02 0.02-0.002 (C1988 1.0,5 1.8 7.7 47.8 18.9 58.2 17.6 0-5 Alp 0.2 0.6 23.0 5-13 Al2 0.3 0.8 2.2 10.4 23.7 41.5 21.1 57.7 14.1 Tr. 1 24.8 54.4 13.8 Tr. 13-24 2.3 10.0 23.0 38.8 B21 0.8 1 0.3 6.5 42.7 24.8 56.5 24.3 24-30 **B22** 0.4 1.2 14.9 Tr. 1 0.1 47.3 0.9a 4.7a 28.7a 18.0 63.0 16.3 1 30-37 **B3** 0.1 0.3a Tr. 1.8a 7.7a 29.1a 37-47 47-60 44.3 16.1 63.2 1 Cca 0.3a 0.7a 15.3 Tr. fal 23.4 17.8 50.9 1.0 2.8 9.5 35.5 10.0 3.9 Tr. ELECTRI-CONDUC-TIVITY EC 103 MILLIMIOS PER CM ORGANIC MATTER 842 6Kla MOISTURE TENSIONS ρH EST% SALT 6Ala 6Bla 8Cla 482 CaCO3 GYPSUM equiv-elent SOIL ORGANIC NITRO-CARBON GEN (BÜREAU CUP) ATMOS. C/N ATMOS, 7:10 ATMOS. 1:5 3... 4 1,1 111 1 ...

Soil type: Goshen silt loam
Soil No.: S58Nebr-25-1-(1-7)

Tocation: 450 feet east and 180 feet north of southwest corner Sec. 21,

Springs, Deuel County, Nebraska.

Physiography: Swale in loess-mantled residual uplands.

Relief: Slight.
Slope: Less than 1 percent, plain.

Aspect: Just below footslope position.

Parent material: Loess and alluvium. Drainage: Well drained.

Permeability: Moderate. Salt or alkali: None.

Iand use: Wheat 1958.

Climate: Average annual precipitation 18.5 inches; average annual temperature 49° F Collected by and date: John Elder, W. McKinzie and Robert Jordan, October 23, 1958.

Lincoln

Lab.

No. Horizon

- 9389 Alp 0-5", Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam; weak coarse subangular blocky; dry slightly hard, moist friable; noncalcareous; abrupt smooth boundary.
- 9390 Al2 5-13", Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt\_loam: weak coarse subangular blocky; dry slightly hard, moist very friable; noncalcareous; clear smooth boundary
- 9391 B21 13-24", Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) light silty clay loam; moderate coarse prismatic breaking to moderate fine and medium subangular blocks; dry slightly hard, moist friable; noncalcareous; clear smooth boundary.
- 9392 B22 24-30", Brown (10YR 5/3 dry) to dark grayish brown (10YR 4/2 moist) silt loam; weak coarse prismatic breaking to weak fine and medium subangular blocks; dry soft, moist very friable; noncalcareous; clear smooth boundary.
- 9393 B3 30-37", Pale brown (10YR 6/3 dry) to brown (10YR 5/3 moist) silt loam; weak coarse prismatic breaking to weak fine and medium subangular blocks; dry soft, moist very friable; slight effervescence; gradual smooth boundary.
- 9394 Cca 37-47", Very pale brown (10YR 7/3 dry) to brown (10YR 5/3 moist) silt loam; massive; dry soft, moist very friable; violent effervescence; abrupt smooth boundary.
- 9395 D 47-60", Very pale brown (10YR 7/3 dry) to reddish yellow (7.5YR 6/6 moist) loam; massive; dry soft, moist very friable; violent effervescence.

NOTE: D horizon - Tertiary material - Ogallala. Few scattered medium gravels throughout the profile. Worm activity throughout profile and very prominent in the B3 horizon. Horizons Alp. B21 and Cca were sampled for Bureau of Public Roads.

	SOIL			LABORATORY Lincoln, Nei									
	SOIL	TYPE G	oshen It loam	**********	L	OCAT	ION	Deuel	County	, Nebr	aska		-
	SOIL	NOS.	S58Ne	br-25-2	2-(1-7	)	LAB.	NOS.	939	6-9402	<u> – "-</u>	<del>di</del> casata i sainta	
		YAT		PARTIC	CLE SIZ		SUTION (	n mm.) (pe	r cent)	3 <b>A</b> 1	2A2		
	DEPTH	HORIZON COAR SANI 2-1	SE (COARSE)	MEDIUM SAND 0.5-0.25	SAND	VERY FINE SAND 0, 10-0 05	\$ILT 0.05-0.00	CLAY	0. 2-0.02	102-0002	>2	TEXTURAL CLASS	
	n-7	A15 10.1	_0. <b>-7</b>	ו.נ.	4.4	27.5	46.7	19.5	60.5	16.7	- 1	1	<u> </u>
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Soil type: Goshen silt loam Soil No.: S58Nebr-25-2-(1-7)

R45W; approximately 1.5 miles east and 3 miles north of Chappell, Deuel County, Nebraska.

Physiography: Low-lying area in loess-mantled residual uplands.

Relief: Slight.

Slope: Less than 1 percent, plain.

Aspect: Just below footslope position. Parent material: Loess and alluvium.

Drainage: Well drained.

Permeability: Moderate. Salt and alkali: None.

Climate: Average annual precipitation 18.5 inches; average annual temperature 49°F.

Land use: Wheat 1958.

Collected by and date: John Elder, W. McKinzle and Robert Jordan, Oct. 23, 1958.

Lincoln

Lab.

No. Horizon

- 9396 Alp 0-7", Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam; weak medium and coarse subangular blocky; dry slightly hard, moist very friable; noncalcareous; abrupt smooth boundary.
- 9397 Al2 7-14, Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam; weak medium subangular blocky; dry slightly hard, moist very friable; noncalcareous; clear smooth boundary.
- 9398 B21 14-21", Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) heavy silt loam; weak coarse prismatic breaking to weak fine and medium subangular blocks; dry slightly hard, moist very friable; noncalcareous; gradual smooth boundary.
- 9399 B22 21-30", Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) heavy silt loam; weak coarse prismatic breaking to weak fine and medium subangular blocks; dry slightly hard, moist very friable; noncalcareous; abrupt smooth boundary
- 9400 B3 30-36", Brown (10YR 5/3 dry) to dark grayish brown (10YR 4/2 moist) silt loam; weak coarse prismatic breaking to weak medium subangular blocks; dry slightly hard, moist very friable; violent effervescence; gradual smooth boundary.
- 9401 Cca 36-47", Light gray (10YR 7/2 dry) to pale brown (10YR 6/3 moist) silt loam; massive; dry soft, moist very friable; violent efferves-

SOIL SURVEY LABORATORY

SOIL TYPE Hall silt loam

Mandan, North Dakota

SOIL NO. <u>\$51Nebr-40-11-(1-7)</u>

			1Bla		PARTICLE SIZE DISTRIBUTION			N (in m	(in mm.) (pêr		3A1.		
LABORATORY NUMBER	DEPTH IN INCHES	HORIZON	VERY COARSE SAND 2-1	COARSE SAND 1 · 0.5	MEDIUM SAND 0.5 - 0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05		CLAY	0.02-0.002	0.2-	2A2 > 2 (19-4)	TEXTURAL CLASS
949 950 951	0-8 8-18 18-21	Alp Al2 AB	0.1 0.1 0.1	0.3 0.2 0.2	0.6 0.6 0.5	3.0 1.6 1.0	23.5 24.7 12.1	48.3 46.3 50.7	24.2 26.5 35.4	12.8 9.8 16.1	60.6 62.0 47.1	- - -	l l sicl

Soil type: Hall silt loam
Soil No.: S51Nebr-40-11-(1-7)
Location: About 900 feet north and 100 feet east of SW corner, Sec. 5, Tiln, RilW, Hall County, Nebraska.
Vegetation: Cultivated, wheat stubble.
Parent Material: Loess.
Physiographic position: Terrace.
Thypography: Centle undusting nlein

Physiographic position: Terrace.
Topography: Gentle undulating plain.
Slope: Less than 1 percent.
Erosion: None or slight.
Drainage: Good.
Moisture: Moist.
Stoniness: None.
Described by: B. H. Williams.
Date: October 10, 1951.
Mandan

Mandan	0000001 20,	
1ab.No. 949	Horizon Alp	0-8 inches. Dark gray (10YR 4.5/1 dry) to very dark brown (10YR 2/2 moist) silt loam; fine soft granular; friable.
950	A12	8-18 inches. Same as above except weak blocky breakage.
951	AB	18-21 inches. This is a kind of Bl in which there is incipient graying along the structure planes as in an A2 horizon. Dark gray (10YR 4/1 dry) to very dark grayish brown (10YR 2.5/2 moist) light silty clay loam; medium to fine blocky-granular.
952	B2	21-32 inches. Grayish brown (2.5Y 5/2 dry) to very dark grayish brown (2.5Y 3/2 moist) silty clay loam; medium blocky; slightly hard dry; friable moist; slightly sticky wet.
953	В3	32-41 inches. Light brownish gray (2.5Y 6/2 dry) to dark grayish brown (2.5Y 4/2 moist) heavy silt loam; weak blocky; friable.
954	CJ	41-56 inches. Mixed light and dark silt loam sedimentary layers; marbling through mixing by rodents and insects.
955	C2	56-62 inches. Light brownish gray (2.5Y 6/2 dry) to dark grayish brown (2.5Y 4/2 moist) silt loam; massive; friable; calcareous. This is a dark sedimentary layer or the Al of a former weakly developed soil.

Note: This sample is from the same general soil association area of Wood River and Hall soils noted under Profile No. S51-Nebr-40-10-(1-8).

## SOIL SURVEY LABORATORY

SOIL TYPE Hall silt loam

Mandan, North Dakota

SOIL NO. <u>\$52Nebr-40-2-(1-9)</u>

			1Bla		PARTIC	LE SIZE D	SIZE DISTRIBUTION (in mm.) (per cent) 3A1.							
LABORATORY NUMBER	DEPTH IN INCHES	HORIZON	VERY COARSE	COARSE	MEDIUM	FINE	VERY FINE	SILT	CLAY			2A2 > 2	TEXTURAL	
	HICHES		SAND 2·1	SAND 1-0.5	SAND 0.5.0.25	SAND 0.25.0.10	\$AND 0.10.0.05	0.05-0 002	Z0.002	0.02-0.002			CLASS	
·	0 F	4.7	2.1			<u> </u>			· .	16.9			-47	
1174	0-5	Alp		0.2	0.4	1.8	15.4 13.5	58.6 55.8	23.6	16.3	58.4 53.7		sil sicl	
1175	5 <b>-</b> 14 14-18	A12 A3B1 1		0.1	0.2	0.7	12.0	52.4	34.6		49.4		sicl	
1176	18-24		<u> </u>		0.2	0.9	16.9	49.8	32.2		55.9	==	sicl	
1177	24-27	B2			0.2	1.1	23.6	51.4	23.7	8.7	67.0		sil	
1178	24-27 27-38	B31 B32		0.1	0.7	2.2	29.2	50.5	17.3	9.3	71.8		sil	
1179 1180	38-50	C1			-	11.2	38.1	38.5	12.0	5.3	81.5		li	
1181	50-52	AJJb			0.2	1.8	13.2	63.1	21.7	22.9	55.0		sil	
	52-60				0.2	1.2	13.6	67.7	17.3	17.7	64.3		sil	
1182	)2 <del>-</del> 00	Clb			0.2	1.2	ا ۰۰رـــا	01.1	-(•)	-1-1	04.5		011	
		рН	l	ORG	ANIC MAT	rter	FST 8A2	ELECTRICAL CONDUC-	CaCO3	GYPSUM	MOISTURE TEN		SIONS	
				x	l x		SALT	TIVITY				(per cent)	T	
	SATURATED	1:5	1:10	ORGANIC		C/N	(BUREAU	EC x 10 3 MILLIMHOS	equivalent	me./100g	1/10	1/3	15	
	PASTE			0,410011	NITROGEN	0,	CUP)	PER CM SALa	per cent	SOIL	ATMOS.	ATMOS.	ATMOS.	
	8стр	8cla	801a	6Ala					6Ela	6Fla			14382	
	5.9	6.8	6.9	1.84			<del></del>	0.4	tr				10.9	
	5.8	6.7	6.8	1.62				0.3	tr				13.9	
	5.9	6.9	7.0	1.22				0.2	_ <del>_</del>				16.8	
	6.0	7.1	7.2	0.72				0.2	tr				11.8	
	6.2	7.3	7.4	0.48				0.3	_ <del>_</del>				15.7	
	6.5	7.6	7.7	0.27			—	0.3	tr				8.8	
	6.6	7.6	7.7	0.12				0.4	tr				6.1	
	6.5	7.7	7.6	0.20				0.4	tr				11.2	
	6.6	7.7	7.8	0.14				0.4					10.0	
	5Ala cation	513.a	CATI	ONS	NS 5Blb 5D			SATURATION EXTRACT SOLUBLE BAL						
		EXTRACT	ABLE	EXCHAI	GEABLE		6Pla	_		Т			PER CENT	
	EXCHANGE	Ca	Mg	_Na	_K_	ABLE Socium	Na Na	K	co <sub>3</sub>	нсо	CI	so <sub>4</sub>	MOISTURE	
	CAPACITY	6м2ъ	602b	6P2a	6 <b>0</b> 2a.	PERCENTAGE	''"		-	"			SATURATION	
	-Neil OAc	illiequivalent	s per 100g	soil	· -	ESP	<b>←</b>	n	ents per lite	nts per liter →				
	21.3	13.2	4.4	0.1	1.7		0.2	0.8					40.2	
	23.7	15.3	4.5	0.1	0.8		0.2						52.5	
	26.5	17.3	5.2	0.3	0.9	1	0.2	0.2					59.6	
	24.9	16.4	6.0	0.3	1.3	1	0.2	0.2					61.0	
	19.6	12.9	4.7	0.3	1.1	2	0.2	0.2					52.5	
	15.6	10.4	3.7	0.1	1.2	1	0.2	0.5					46.5	
	11.0	7.7	2.8	0.3	1.0	3	0.6	0.8					38.7	
	20.1	13.6	4.2	0.3	2.0	1	0.2	0.8					46.8	
	18.4	12.7	3.8	0.3	2.1	2	0.6	0.8					45.5	
													,E, MO 2682 -	 

Soil type: Hall silt loss Soil No:: S52Nebr-40-2-(1-9)

Date: Seytember 1952

County: Hall County, Hebrasks.

Location: NEI/4 of NEI/4 Sec. 9, Tion, RilW, about 700 feet south and 100 feet west of northeast corner of section.

Described by: B. H. Williams.

Mandan Lab. No. Horizon

1174 Alp 0-5 inches. Very dark gray (10YR 3/1 moist) to gray (10YR 5/1 dry) friable, granular silt loam.

1175 Al2 5-14 inches. Very dark brown (lOYR 2/2 moist) to dark gray (lOYR 4/1 dry) silt loam; breaks out in large irregular blocks but crushes easily; slightly moist to medium granules.

1176 A3B1 14-18 inches. Very dark grayish brown (10YR 3/2 moist) to grayish brown (10YR 5/2 dry) coarse granular to weak subangular blocky, friable, heavy silt loam.

1177 B2 18-24 inches. Mark grayish brown (love 3.5/2 moist) to grayish brown (love 5/1.5 dry) silty clay loam (probably on light side); medium blocky but crushes to fine blocks and coarse granules.

1178 B31 24-27 inches. Brown (10YR 5/3 moist) to pale brown (10YR 6/3 dry) blocky, friable, silt loam.

1179 B32 27-36 inches. Dark brown (10YR 4/3 moist) to pale brown (10YR 6/3 dry) weak blocky light silt losm or very fine sandy losm; soft, friable, moist.

1180 C1 38-50 inches. Grayish brown (2.57 6/2 moist) to light brownish gray (2.57 6/2 dry) massive, friable, very fine sandy loss.

1181 Alb 50-52 inches. Grayish brown (2.5Y 5/2 moist) to light brownish gray (2.5Y 6.5/2 dry) weak blocky, friable, silt loam, high in coarse silt or very fine sand.

1182 Clb 52-60 inches. Grayish brown (2.5Y 5/2 moist) to light gray (2.5Y 7/2 dry) massive, friable, silt loss or very fine sandy loss.

-- 60+ inches. A heavy silt loam, same color as above horizon. No free lime carbonate to 64 inches.

Note: Coarse sand substratum is found at depth of 5 to 7 fest in this general area.

SOIL SURVEY LABORATORY Lincoln, Nebr. April 1963

SOIL TYPE Hastings LOCATION Adams County, Nebraska

silt loam

SOIL NOS. S59Nebr-1-1 LAB. NOS. 11202-11213

		lBla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent)	AI		
DEPTH		VERY				VERY					2A2	TEXTURA
INCHES	HORIZON	SAND	COARSE SAND	MEDIUM SAND	FINE SAND	FINE SAND	SILT	CLAY		,	> 2	CLASS
<b>_</b>	1	2-1	1-0.5	0.5-0.25	0, 25-0, 10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	0.02-0.002	(<1.9mm	)
0-5	Alp	-	_	Tr.	0.3	13.3	62.8	23.6	60.1	16.2		sil
5-9	A12	_	_	Tr.	0.2	11.6	56.4	31.8	50.9	17.2	-	sicl
9-12	B1	-	-	Tr.	0.3	9.2	52.2	38.3	46.0	15.6	-	sicl
12-20	B21	-	-	Tr.	0.2	7.9	50.1	41.8	40.7	17.5	-	sic
20-26	B22	-	-	Tr.	0,1	6.4	56.9	36.6	45.1	18.2	-	sicl
26-32	B3	-	-	0.1	0.5	7.8	62.0	29.6	51.0	19.1	_	sicl
32-43	Cca1	0.1b	0.1b	0.1b	0.7a	8.7a	69.6	20.7	54.1	24.7	Tr.	sil
43-53	Ces2	0.15	0.2ъ	0.2b	0.8a	8.5a	68.2	22.0	53.8	23.4	Tr.	sil
53-62+	Cl	0.15	0.2b	0.25	0.7a	8.1a	69.6	21.1	53.6		Tr.	sil
69-84	02	Tr.	0.1b	0.15	0.6a	6.4a	69.6	23.2	53.5	22.9	_	sil

Soil type: Hastings silt loam 859Nebr-1-1 Soil No.:

Location: 175 feet south and 130 feet east of northwest corner Sec. 15, Ton, Rilw, Adams County, Nebrasha.

Elevation: 1,980 feet.

Climate: Subhumid; average annual precipitation 24.6 inches; average annual temperature 51° F.

Parent material: Peorian losss. Hysiography: Upland plain.
Relief: Nearly level.
Slope: Iess than 1 percent southeast.

Erosion: Slight. Drainage: Moderately slow.

Ground water: Deep.
Permeability: Moderately slow.

Moisture: Moist to 5 feet. Salt or alkali: None.

Stoniness: None.

Root distribution: No restrictive zone.

Date: June 17, 1959.

Horizon and Lincoln Lab. Number

0 to 5 inches. Dark grayish brown (10YR 4/2 dry), very dark brown (10YR 2/2 moist), and very dark brown (10YR 2.5/2 moist crushed) silt loam; coarse clods breaking to weak very fine granular structure; Alp 11202 slightly hard, dry; friable, moist; noncalcareous; abrupt smooth boundary.

Described by: Ross Greenawalt.

5 to 9 inches. Very dark grayish brown (10YR 3.5/2 dry), very dark gray (10YR 3/1 moist), and very dark grayish brown (10YR 3/2 moist crushed) heavy silt loam; weak medium and coarse angular blocky breaking to moderate fine and very fine granular structure; slightly hard, dry; friable, moist; noncalcareous; A12 11203 clear, smooth boundary.

9 to 12 inches. Dark grayish brown (10YR 4/2 dry), very dark grayish brown (10YR 3/2 moist), and wery dark grayish brown (10YR 3.5/2 moist crushed) silty clay loam; moderate fine subangular blocky structure; B1 11204 thin discontinuous clay films; hard, dry; firm, moist; noncalcareous; clear smooth boundary.

12 to 20 inches. Grayish brown (10YR 5/2.5 dry), dark brown (10YR 3/3 moist), and olive brown (2.5Y 4/3 moist crushed) heavy silty clay loam; moderate fine and medium subangular blocky; thin continuous clay films; hard, dry; firm, moist; noncalcareous; gradual smooth boundary. R21 11205

20 to 26 inches. Brown (10YR 5/3 dry), dark brown (10YR 4/3 moist), and olive brown (2.5Y 4/4 moist ROD 11206 crushed) heavy silty clay loam; moderate medium blocky structure; thin continuous clay films; hard, dry; firm, moist; noncalcareous; gradual smooth boundary.

26 to 32 inches. Fale brown (10YR 6/3 dry), yellowish brown (10YR 5/4 moist), and grayish brown (10YR 11207 5/2.5 moist crushed), few faint fine strong brown mottles, heavy silt loam; weak coarse and medium angular blocky structure; hard, dry; friable, moist; noncalcareous, however, a few soft lime segrega-tions are present in the lower inch; gradual smooth boundary.

32 to 43 inches. Light gray (10YR 7/2 dry), light clive brown (2.5Y 5/4 moist), and clive brown (2.5Y 4.5/4 moist crushed), few distinct fine dark brown mottles, silt loam; weak coarse angular blocky structure; slightly hard, dry; friable, moist; strong effervescence; (lime mostly as small soft segregations); Ccal 11208 clear wavy boundary.

43 to 53 inches. Light gray (10YR 7/2 dry), light olive brown (2.5Y 5/3 moist), and brown (10YR 5/3 moist crushed), few distinct fine brown mottles, silt loam; weak coarse prismatic with weak fine platy secondary structure; slightly hard, dry; friable, moist; strong effervescence; (lime disseminated and on faces of peds); gradual smooth boundary. Cca2 11209

53 to 62+ inches. Light gray (2.5Y 7/2 dry), grayish brown (2.5Y 5/2 moist), and light olive brown (2.5Y 5/3 moist crushed) silt loam; weak coarse prismatic with fine platy secondary structure; slightly hard, dry; friable, moist; strong effervescence; (lime disseminated and on faces of peds); gradual CJ. 11210 smooth boundary.

69 to 84 inches. Hight gray (LOYR 7/2 dry), yellowish brown (LOYR 5.5/4 moist), and brown (LOYR 5/3 moist crushed) silt loam; slightly hard, dry; friable, moist; slight effervescence. 02 11211

Note: Numerous fine and very fine pores from 20 to 62 inches. Samples 69 to 120 inches taken with orchard auger. In deep cuts, the lower horizons have weak coarse prismatic structure. The very fine sands include approximately In deep cuts, the lower horizons have weak coarse prismatic structure. The very fine sands include approximately 50 percent quartz, 20 percent identified feldspar, and 15 percent highly altered grains. Glass shards increase from 5 percent in the solum to 15 percent in the C horizons. The pattern of feldspar alteration changes little with depth. Many of the identified feldspar grains, also somewhat altered, are probably albite. Accessory minerals in order of decreasing abundance are chlorite(?), which increases with depth, amphibole, epidote, and plant opal (restricted to upper horizons largely). (Method TBL) This profile description used in Guide for Tour III, Seventh Congress of the International Society of Soil Science, August 1960. SOIL SURVEY LABORATORY Lincoln, Nebr. April 1963 SOIL TYPE Hastings LOCATION Adams County, Nebraska silt loam SOIL NOS. S61Nebr-1-1 LAB. NOS. 15723-15731 PARTICLE SIZE DISTRIBUTION (in mm.) (por cont) 3A1 lBla... 2A2 DEPTH HORIZON COARSE COARSE MEDIUM FINE SAND VERY FINE SAHO SILT > 2 CLAY 0.5-0.25 0.25-0.10 0.10-0.05 0.05-0.002 < 0.002 0.2-0.02 0.02-0.002 ,

Soil type: Hastings silt loam

Soil No.: S6lNebr-1-1 Location: 150 feet east and 150 feet north of S1/4 corner Sec. 23, T6N, RllW, Adams County, Nebraska.

Topography: Nearly level, less than 1/2 percent slope.

Crop: Fallow ground the summer of 1961. Described by: Herbert L Kollmorgen.

Horizon and Lincoln Tab. Number

0 to 6 inches. Very dark brown (10YR 2/2 moist) silt loam. Weak fine crumb; very friable moist; abrupt smooth boundary. Color was somewhat splotchy and had some 10YR 3/1 mixed with 2/2 in matrix. Alp 15723

6 to 9 inches. Very dark brown (10YR 2/2 moist) silty clay loam. Moderate medium and fine granular; A12 15724 friable moist; clear smooth boundary.

9 to 11 inches. Very dark brown (10YR 2/2 moist) silty clay loam. Moderate fine and very fine subangular blocky; friable moist; clear smooth boundary. 15725

B21 11 to 20 inches. Dark brown (10YR 3/3 moist) heavy silty clay loam or silty clay. Moderate medium and 15726 fine prismatic to moderate or strong medium and fine angular blocky; firm moist; clear wavy boundary; continuous clay skins. Organic stainings on cleavage planes; some dark fill in small channels or cracks.

20 to 25 inches. Dark grayish brown (10YR 4/2 moist) silty clay loam. Moderate medium and fine pris-B22 15727

matic to weak coarse and medium subangular blocky; firm, moist; clear wavy boundary; thin and patchy clay Tank orwanic stainings on cleausee planes: some fork fill in cracks and old channels

B3 15728 25 to 35 inches. Brown (10YR 5/3 moist) light silty clay loam. Weak coarse subangular blocky; friable moist but somewhat brittle as it crushes; abrupt wavy boundary; some worm casts and pores; few common distinct dark brown mottles.

35 to 46 inches. Light brownish gray to pale brown (10YR 6/2.5 moist) silt loam. Massive; friable 15729 moist but somewhat brittle as it crushes; violent effervescence. This horizon split from C2 for sampling so no lower boundary indicated. Many fine pores and open root channels. Concentration of CaCO2 on cleavage planes and in the former root channels: few fine faint dark brown mottles.

46 to 56 inches. This horizon was divided from Cl only for sampling; all characteristics and features 15730 continue the same from 35 to 56 inches of depth. Gradual wavy boundary at 56 inches.

56 to 72 inches. Pale brown (10YR 6/3 moist) silt loam. Massive; very friable moist; strong effer-vescence; free lime visible in old root channels. Many fine pores in matrix; few fine faint yellowish brown mottles and numerous fine dark brown mottles; matrix has a somewhat brittle feel when being crushed. 15731

Remarks: The very fine sands include approximately 50 percent quartz, 20 percent identified feldspar, and 15 percent highly altered grains. Glass shards increase from 5 percent in the solum to 15 percent in the C horizons. The pattern of feldspar alteration changes little with depth. Many of the identified feldspar grains, also somewhat altered, are probably albite. Accessory minerals in order of decreasing abundance are chlorite(?), which increases with depth, amphibols, epidote, and plant opal (restricted to upper horizons largely). (Method 7El)

SOIL SURVEY LABORATORY Mandan, N. Dak, a/ 9/21/55

SOIL TYPE Hastings LOCATION Clay County, Nebraska

SOIL NOS. S54Nebr-18-1-(1-8) LAB. NOS. 2358-2365

4 <u> </u>	i i	1R1b		PARTI	CLE SIZ	E DISTRIE	UTION (in	mm.) (pe	r cent)	3 <b>A</b> 1		i i
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND 1-0,5	MEDIUM SAND 0.5-0.25	FINE SAND 0.75-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY	0. 2-0.02	Q02-Q002	2A2 > 2	TEXTURAL CLASS
				!	[					i		
06	Alp	0.1ъ	0.1	0.1	0.3	15.0	59.3	25.1	57.5	16.9	-	sil
6-9	nl2	- '	-	0.1	0.2	9.1	57.1	33.5	48.0	18.3	-	sicl
9-12	B1.	_	-	0.2	0.1	9.0	54.0	36.7	42.9	20.1	_	sicl
12-24	B21	_	_	_	0,1	7.3	53.4	39.2	38.9	21.8	_	sicl
24-33	B22	_		0.1	0,2	7.3	55.4	37.0	38.1	24.7	-	sicl
33-38	B3	_	-	0.2	0.3	9.8	57.7	32.0	42.7	24.9		sicl
38-48	C	-	0.1	0.1	0.3	10.7	62.5	26.3	47.4	26.0	-	sil
48-60	Cca	-	0.4	0.2	0.4	13.5	62.8	22.7	48.7	27.8	_	sil
pH				ANIC MA	TTER	: <del>-1,20</del>	ELECTRI-	6Ela		MOIST	URE T	ENSIONS
BCHP	8Cla	8Cla	6Ala	6Bla		EST% SALT	CONDUC-	C4CO1	GYPŞŲM			4382

Soil type: Hastings silt loam Soil No.: S54Nebr-18-1-(1-8)

Location: 1160 feet west and 100 feet south of northeast corner Sec. 19, T8N,

R5W, Clay County, Nebraska.

Topography: East-northeast facing slope of about 2 percent in an undulating

loess-mantled plain.

Land use: Cultivated, fallow 1954.
Described by: B. H. Williams.

Mandan

Iab.

No. Horizon Depth

2358 Alm 0-6" Grayish brown (10YR 5/2, dry) to very dark grayish brown

(10YR 2.5/2, moist) silt loam, moderate fine granular structure but breaks up somewhat cloddy when tilled dry; slightly hard, dry; friable, moist; abrupt smooth lower

boundary.

2359 Al2 6-9" Dark\_grayish brown (10YR 4/2, dry) to very dark brown

(10YR 2/2, moist) silt loam; strong fine granular structure; soft, dry; friable, moist; clear smooth lower

boundary.

2360 Pa 9-12" Dark gravish hour (1008 1/2 dru) to ware dark movieh

prismatic vertical cleavage with prisms separating easily to strong fine blocks; slightly hard, dry; friable, moist. Clear smooth lower boundary.

2361 B<sub>21</sub> 12-24" Grayish brown (10YR 5/2.5, dry) to dark brown (10YR 4/3, moist) heavy silty clay loam; compound moderate medium prismatic and strong fine blocky structure; hard, dry; firm, moist; moderate glaze on surfaces of blocks; some dark organic staining along vertical cleavage planes.

2362 B22 24-33" Pale brown (10YR 6.5/3, dry) to brown (10YR 5/3, moist) heavy silty clay loam; compound moderate medium prismatic and strong medium and fine blocky structure; hard, dry; firm, moist; slightly glazing on faces of blocks and some dark organic staining along vertical cleavage planes; gradual smooth lower boundary.

SOIL SURVEY LABORATORY Mandan, N. Dak. a/ 9/20/55

SOIL TYPE Hastings LOCATION Clay County, Nebraska

SOIL NOS. S54Nebr-18-2-(1-8) LAB. NOS. 2366-2373

]	; ;	ТИЪ		PARTI	CLE SIZ	E DISTRIB	UTION (in		e/ ce.st)	3 <b>A1</b>	****************	
DEPTH INCHES	HORIZON	VERY COARSE SAND 7-1	COARSE SAND	MEDIUM SAND 0.5-0.25	FINE \$AND 0 75-0 10	VERY FINE SAND C 10-C 05	\$ILT 0.05-0.002	CLAY < 0.007	0 7-G C2	202-2012	2A2 > 2	TEXTURAL CLASS
0-6	alp	_	0.1ъ	0.3	0.5	15.7	59.1	2/4.3	57.2	17.9	_	sil
6-10	A12	_	~	0.1ъ	0.2	9.5	57.8	32.4	£6 8	20.6	_	sicl
10-15	B1	_	-	0.2	0.3	9.2	53.7	5،6	40.9	22.1	' –	so ol
15- <b>21</b>	B21	-	-	-	0.1	6.9	55.6	37.4	3ơ.3	24.2	-	sicl
21-31	B22	-	0.17	0.1	0.1	7.5	56.0	36.2	39.2	24.3	-	sicl
31-39	B3	. –	0.1b	0.1	0.2	11.2	55.4	33.0	43.4	23.3	-	sicl
39-47	С	0.1b	0.1	0.1	0.2	10.4	63.0	25.1	44.6	23.9	-	sil
47-60	Cca	0.2	0.1	0.1	0.2	9.7	64.8	24.9	44.2	30.4	- 1	sil
	1	į		ļ	i		İ					
	pH ORGANIC MATTER				714 10-14 FARINA	ELECTRI-: OEIa; MOISTURE					NSIONS	
8Clb satus	8cla	8C1a	6Ala			EST% SALT	CAL CONDUC- TIVITY	CoCO3	GYPSUM			482

Soil type: Hastings silt loam Soil No.: S54Nebr-18-2-(1-8)

Location: .2 mile south and 300 feet west of northeast corner Sec. 24, ToN,

R7W, Clay County, Nebraska.

Topography: On 2 percent east facing slope of undulating loess-mantled plain,

but only 200 to 300 feet back (west) from a steep slope breaking

to lower ground.

Land use: Cultivated, sorghum 1954. Described by: B. H. Williams.

Mandan Iab.

2366 A<sub>lp</sub> Dark grayish brown (10YR 4.5/1.5, dry) to very dark grayish brown (10YR 2.5/2, moist) silt loam; moderate fine granular structure; soft, dry; friable, moist; in tillage when dry breaks to medium and coarse blocky clods with slightly hard dry consistence; abrupt smooth lower boundary. 2367 A<sub>1.2</sub> 6-10" Dark grayish brown (10TR h/1.5, dry) to very dark grayish brown (10YR 2.5/2, moist) silt loam; strong fine granular structure; soft, dry; friable, moist. When spaded up in nearly dry condition, the soil falls apart in large blocky clods, breaking along vertical cracking planes; clear smooth lower boundary. 2368 B<sub>1</sub> Dark grayish brown (10YR 1/2, dry) to very dark grayish brown (10YR 3/2, moist) light silty clay loam; compound 10~15° weak coarse prismatic and strong fine blocky structure; slightly hard, dry; friable, moist; plant roots abundant; clear smooth lower boundary.

2760 B. 15-22" Granden brown (1048 5/2.5. dmr) dark granden brown (1048

coarse prismatic and strong medium and fine blocky structure; hard, dry; firm, moist; some dark brown staining along vertical cracking planes; gradual smooth lower boundary.

2370 B<sub>22</sub> 21-31" Pale brown (10YR 6/3, dry) to brown (10YR 5/3, moist) silty clay loam; compound moderate medium and coarse prismatic and strong medium and fine blocky structure; dark brown staining along some of the vertical cracking planes; hard, dry; firm, moist; a fair number of living roots and numerous dead ones; clear smooth lower boundary.

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SOIL SURVEY LABORATORY Mandan, N. Dak. 8/ 9/20/55

SOIL TYPE Hastings LOCATION York County, Nebraska

SOIL NOS. S54Nebr-93-1-(1-7) LAB. NOS. 2344-2350

4 <b>077000</b> * 00444 <sup>0</sup> 204 29491		IRIN					UTION (in				4\$4 e44 b42 4 ; <u>2 = e440</u>	
DEPTH INCHES	HORIZON	VERY COARSE	COARSE	MEDIUM	FINE	VERY FINE					2A2 > 2	TEXTURAL CLASS
	<u> </u>	SAND 2-1	\$AND	\$AND 0,5-0.25	\$AND 0.75-0 10	SAND 0 10-0 05	\$1LT 0.05-0.00?	CLAY < 0 002	`0 2-0.02	: 407-4002	,,	
			1 0 0		^ 4	0.4	6, 1	25.2	54.1	19.8	<b>-</b> .	sil
06 615	Alp Al2	0.1	0.2	0.2	0.6	9.6 7.8	64.1 56.6	32.6	ŧ	22.1		sicl
15-20	Bl	-		0.1	0.1	7.1	56.0	36.7		25.2	-	sicl
20-29	B21	_	_		0.6	6.5	54.3	33.6	39.2	21.8	-	sicl
29-37	B22		_	0.1	0.2	ಕ.7	54.7	36.3	41.5	22.0	-	sicl
37-48	B3	-	_	0.3	0.5	o.3	58.3	32.6		22.9	-	sicl
48–60	С	-	0.1	-	0.2	11.6	6C <b>.</b> 7	27.4	48.C	24.4	-	sicl
14+1) 1 has 200 y phhaba 144		*************				  - 		6ELA				
BC1P	, вн 1 801a	801A	6ALA	MIC MA	ITER	EST%	ELECTRI- CAL CONDUC-		ļ		OKE II	ENSIONS
SATU- RATED PASTE	1:5		ORGANIC CARBON		C/N	SALT (BUREAU CUP)	TIVITY EC = 103 MILLIMHOS	equiv-	GYPSUM me./100g. SOLL	1/10 ATMOS.	E\I AOMTA	15 ATMQ\$.
			*	•			PER CM	<b>5</b>		*	*	5
5.5	5.9	6.2	1.81	.166	10.9			_				9.9
5.7	6.4	6.5	1.47	141	10.4			_	Ì	ĺ		13.3
5.7	6.5	6.8	0.94	.095	9.9			<u> </u>				15.1
5.9	6.6	6.9	0.55	.066	8.3			-				16.4
6.1	6.8	7.3	0.29					-		į į		16.6
6.3	7.3	7.4	0.18					-	1			15.2
6.5	7.3	7.7	0.08				•	-	!	į		13.9
			į									1
5Ala	<b></b>	EXTRAC	TABLE	CATIONS	5 <b>B</b> la	BASE			5A3a	803	······································	) <del>17. //////</del> **
CATION	6 <b>K2b</b>	602ъ	1	6P2a	602a	SAT.	į		Sum.			MOISTURE
EXCHANGE CAPACITY NH <sub>14</sub> Ac	Co	Mg	н	No	K		No	ĸ	Cat- ions	Ca/Mg		SATU- RATION
<del></del>	†	millioquiv	elents per	1/10g. sol		5¢l	;	<u> </u>	me/100g	r}		ļ <u>R</u>
19.7	10.9	3.3		-	2.0	82	; ;		16.2	3-3		•
22.4	13.7		İ	0.1	0.8	86	į	Ī	19.3	3.0		
24.6	13.5	5.8		6.1	0.6	81.	•		20.0	2.3		1
26.1	16.8	7.0		0.2	0.8	95	į	l	24.8			1
26.9	18.1	7.7		0.3	1.2	100			27.3	• .		
27.1	18.2	7.4	İ	0.3	1.4	100 100			27.3 26.5	2.4		ļ
25.8	17.6	7.0		0.4	1.5	100		i	20.7	4.7		
a/Po	article	size	analy	es by	Belts	rille Ia	borator	ŀ.				
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Soil type: Hastings silt loam Soil No.: S54Nebr-93-1-(1-7)

location: 150 feet south and 80 feet west of northeast corner Sec. 4, TION,

R2W, York County, Nebraska.

mantled plain.

More to the second of the seco

Land use: Cultivated, corn 1954. Described by: B. H. Williams. Mandan Lab. Morizon Depth No. Grayish brown (10YR h.5/2, dry) to very dark grayish brown 2344 Alp 0-6" (10YR 3/2, moist) silt loam; fine granular structure; slightly hard and blocky or cloddy, dry; friable, moist; abrupt smooth lower boundary. 2345 A12 6-15" Dark grayish brown (10YR L/2, dry) to very dark grayish brown (10YR 3/2, moist) heavy silt loam; weak coarse blocky separating to moderate or strong fine granular structure; slightly hard, dry; friable, moist; gradual smooth lower boundary. 2346 By 15-20" Dark grayish brown (10YR 4/2, dry) to very dark grayish brown (10YR 3/2, moist) silty clay loam; weak coarse prismatic separating to strong fine and very fine blocky structure; faces of blocks slightly darker than interiors; hard, dry; firm, moist; gradual smooth lower boundary. Grayish brown (10YR 5/2.5, dry) to dark grayish brown 2347 B21 20-29" (10YR h/2, moist) heavy silty clay loam or silty clay; weak coarse prisms separating easily into strong medium and coarse blocky structure; hard, dry; firm, moist; moderate glaze on blocks; gradual smooth lower boundary. 2348 B<sub>22</sub> Prown (10YR 5.5/3, dry) to light olive brown (2.5Y 5/3 moist) 29-37" heavy silty clay loam; strong medium and coarse blocky structure, with moderate glaze on faces of blocks; hard, dry; firm, moist; gradual smooth lower boundary. 37-48" Pale brown (10YR 6/3, dry) to light olive brown (2.5Y 2349 Ba 5/4, moist) silty clay loam; moderate medium blocky structure with slight glase on faces of peds; slightly hard, dry; friable, moist; old root channels and a few live corn roots; gradual smooth lower boundary. 2350 C 48-60° Pale brown (10YR 6.5/3, dry) to light olive brown (2.5Y 5/4 moist) heavy silt loam; massive; soft, dry; friable, moist;

numerous faint fine pores or tube-like channels; no

effervescence with dilute HCl.

Horizons Alp, Al2, B21, B22 and C sampled for Bureau of Public Roads.

SOIL SURVEY LABORATORY Mandan, N. Dak. a/ 9/20/55

OIL TYPE Hastings LCCATION York County, Nebraska

SOIL NOS. S54Nebr-93-2-(1-7) LAB. NOS. 2351-2357

i		1 <b>B</b> 1 <b>b</b>	***************************************	PARTI	CLE SIZ	E DISTRIE	UTION (in	mm.) (p	r cent)	3 <b>A</b> 1		**************************************
DEPTH	į	VERY				VERY					2 <b>A</b> 2	TEXTURAL
INCHES	HORIZON	COARSE SAND	COARSE SAND	MEDIUM	FINE	FINE SAND	SILT	CLAY			> 2	CLASS
<b></b>	l	2-1	1.9.5	0.5-0.25	0 25-0 10	0.10-0.05	0.05-0.002	< 0 002	0 2-0.CZ	002-0002		
0-5	Alp	<b>-</b>	0.6	0.5	0.9	12.5	61.3	24.2	54.4	19.8	-	si.1
5-16	A12	-	_	0.1	0.2	8.4	57.9	33.4	45.1	21.3	_	sicl
16-21	B1.		-	0.3	0.4	6.4	53.9	39.0	38.9	21.6	-	sicl
21-32	B21	-		0.1	0.2	8.1	52.8	38.3	40.3	20.7	-	sicl
32-42	B22	-		C.1	0.2	8.8	56.3	34.6	44.3	20.9	_	sicl
42-51	B3	_		0.4	0.3	10.7	59.5	29.1	46.7	23.6	-	sicl
I 72 <u>−</u> 6Ω.			<u>0.2</u>	_	<u>.o.</u>	15.5	59.7	242	576	25_8	_	sil

Soil type: Hastings silt loam Soil No.: S54Nebr-93-2-(1-7)

Location: 180 feet north and 75 feet east of southwest corner Sec. 32, TlON,

R3W, York County, Nebraska.

Topography: South facing 1 to 2 percent slope in gently undulating losss-

mantled plain.

Land use: Cultivated, wheat 1954. Described by: B. H. Williams.

### Mandan

Lab

No.	Horizon	Depth	
2351	l A <sub>lp</sub>	0-5*	Dark grayish brown (10YR h/l.5, dry) to very dark brown (10YR 2/2, moist) silt loam; fine granular structure; forms slightly hard blocky clods when tilled dry; friable, moist; abrupt smooth lower boundary.
235	2 A <sub>12</sub>	5-16"	Dark grayish brown (10YR h/2, dry) to very dark brown (10YR 2.5/2, moist) silt loam; breaks out in coarse blocks or prisms but crushes to fine granular structure; slightly hard, dry; very friable, moist; clear smooth lower boundary.
235	3 B <sub>1</sub>	16-21"	Brown (10YR 4.5/3, dry) to dark brown (10YR 3/3, moist) silty clay loam; weak coarse prismatic separating easily to fine blocky structure; hard, dry; firm, moist; gradual smooth lower boundary.
2351	1 B5J	21-32"	Grayish brown (10YR 5/2.5, dry) to dark brown (10YR 1/3, moist) heavy silty clay loam or silty clay; weak coarse prisms separating easily to strong medium blocky structure; hard, dry; firm, moist; moderate glaze on blocky peds.
235	5 B <sub>22</sub>	32-42#	Pale brown (10YR 6/3, dry) to brown (10YR 5/3, moist) silty clay loam; moderate to strong medium blocky stracture; hard, dry; firm, moist; some dark organic staining along the better defined vertical structure planes; gradual smooth lower boundary.
235	6 В <sub>3</sub>	42-51*	Very pale brown (10YR 7/3 dry) to brown (10YR 5/3 moist) heavy silt loam; moderate to weak medium and coarse blocky structure; slightly hard, dry; friable, moist;

abundant thread-like pores and channels, some of which contain dead roots; gradual smooth lower boundary.

SOIL TYPE Holdrege LCCATION Phelps County, Nebraska

SOIL NOS. S54Nebr-69-1-(1-8) LAB. NOS. 2178-2185

<b>1000-</b> - 1000-000 per 100-1	**************************************	irib		PARTI	CLE SIZ	E DISTRIE	WTION (in	mm.) (pe	er cent)	3AI	#*# <del>**********************************</del>	**************************************
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND 0.25-0.10	VERY FINE SAND 0 10-0.05	\$ILT 0.05-0.002	CLAY < 0 002	0 2 0 02	Q-02-Q-002	2A2 > 2	TEXTURAL CLASS
		· - •		i	1		•	i		1		
0-7	Alp	0.1	0.2	0.4	1.2	16.6	59.9	21.6	61.6	15.8 17.2	<del>-</del>	sil
7-11 11-14	Al2	_	0.1	0.1	0.3	11.0	59.2 56.1	29.4	53.1 51.3	16.9	_	sicl
14-21	B21	_	0.1	0.1	0.3	9.3	61.7	28.6	53.0	18.1	-	sicl
21-27	B22	_	0.1	0.2	0.7	11.6	64.4	23.0	56.6	19.8	-	sil
27-35	B3		0.1	0.2	0.9	15.8	66.3	16.7	61.8	20.9		sil
35-42	Bca	0.1	0.1	0.2	0.5	12.2	71.1	15.8	61.1	22.7	-	sil
42-60	Cca	0,2	0.3	0.3	0.8	16.3	65.6	16.5	60.4	22.0	-	sil
	pH	***************************************	ORG	NIC MA	! 	1344×1-11414-141	ELECTRI-	6Ela	 	MOIST	URE TE	NSIONS
8016	BCLA	8cla	6Ala		1	EST%	ELECTRI- CAL CONDUC-	ł			.TIVILLI	482
SATU- RATED PASTE	1:5	1:10	ORGANIC CARBON	NITRO- GEN	C/N	SALT (BUREAU CUP)	TIVITY EC - 103 MILLIMHOS		GYPSUM me./100g, SOIL	1/10 ATMOS.	1/3 ATMOS.	15 ATMOS.
			*	%			PFR CM	%		×	3	*
5.0	1 .	( (	12.20	100	11 5							10.0
5.9 6.2	6.5		1.38 1.13	.120	11.5				:			13.6
6.4	7.2		0.86	.088	9.8			_			ı	14.7
6.7	7.3	, , - •	0.49	.059	8.3			_			:	13.6
7.0	7.7		0.26	.038	6.8			_		i ]	i	11.4
7.3	8.1		o.cs	·				-				10.4
7.8	8.7	8.9	0.12					2				10.0
7.9	8.9	9.1	0.09	:				3				, 9 <b>.</b> 9
5Ala	<b>L</b>		TABLE	CATIONS	5Rla	BASE		, <del></del>	5A3a	813	********	<del> </del>
CATION EXCHANGE	6 <b>112</b> b	602ъ		6P2a	692a	SAT. B			Sym			MOISTURE
CAPACITY		Mg	н	No	K		Ne	ar .	Cat-	Ca/Mg		SATU- RATION
NH <sub>t</sub> Ac	ļ l	m'lliequiv	alents per	170g. soll		5C1			ions me/100g	ł		KATION
19.2	11.3	3.8	· · · · · · ·	0.1	1.5	87		••••	16.7	3.0		
		,,,,,	š	,	<b>**</b> */	· · ·	•		10.1	, J.V.		ī
23.7	16.0	5.6	1	0.1	1.0	96	. 1		22.7	2.8		Į.

Soil type: Holdrege silt loam S54Nebr-69-1-(1-8) Soil No.:

Location: 325 feet east and 75 feet south of northwest corner Sec. 28, T6N, Rl8W. North of Holdrege, 2 miles north of intersection of Highways

6 and 183, Phelps County, Nebraska.

Topography: 2 to 3 percent west facing, smooth slightly convex slope, slight

erosion; gently undulating loess plain with slight relief.

Use: Summer fallow 1954. Dryland farmed to corn and wheat. Operator knows of no past management practices which would affect chemical or physical properties of the soil in an unusual way. No lime, fertilizer or manure

has been added; has not been irrigated; has been farmed many years,

probably 40 years or longer.

Described by: B. H. Williams

Mandan

Lab.

No. Horizon Depth

2178 Alp 0+7"

Dark grayish brown (10YR L/2, dry) very dark grayish brown (10YR 3/2, moist) heavy silt loam; strong medium and fine granular structure; slightly hard dry, friable moist; noncalcareous; numerous fragments of decaying straw and roots throughout; abrupt smooth boundary.

2179 A<sub>12</sub> 7-11" Mark gray (10YR 4/1.5, dry) very dark brown (10YR 2/2,

> structure; slightly hard dry, friable moist; noncalcareous; fine roots abundant; clear smooth boundary.

- 2180 A3 11-14" Dark grayish brown (10YR 4/2, dry) very dark grayish brown (10YR 3/2, moist) crushing to 10YR 4/2.5, moist, silty clay losm; strong medium and fine granular structure; slightly hard dry, friable moist; noncalcareous; fine roots abundant; clear smooth boundary.
- 14-21" Light brownish gray(10YR 6/2.5, dry) dark grayish brown (10YR 4/2.5, moist) silty clay loam; weak coarse prismatic 2181 B<sub>21</sub> breaking to strong medium and fine blocky structure; hard dry, friable moist; fine roots plentiful; numerous worm casts; noncalcareous; dark material from above has moved down cracks along faces of larger aggregates; clear smooth boundary.
- 2182 B22 21-27" Pale brown (10YR 6/3 dry) brown (10YR 5/3 moist) heavy silt loam; weak coarse prismatic breaking to moderate medium subangular blocky structure; hard dry, friable moist; noncalcareous; fine roots plentiful; clear smooth boundary.
- 2183 B3 Very pale brown (10YR 6/3, dry) light olive brown (2.5Y 27-35" 5/4, moist) silt loam; weak coarse prismatic breaking to weak medium subangular blocky structure; slightly hard dry, friable moist; noncalcareous with lower inch weakly calcareous; many fine and medium pores and root openings; few fine roots; abrupt boundary.
- 2184 Bca 35-42" Light gray (10YR 7/2, dry) light olive brown (2.5Y 5.5/4, moist) silt loam; weak very coarse prismatic to very weak Mad mature - eaf 77 (

	SOIL SURV	EY LABORAT	TORY Mandan,	. Duk. <b>a</b> /	<u> </u>	
	SOIL TYPE	Holdrege silt loam	LOCATION	I Phelps Count	y, Hebraska	and the same
	SOIL NOS.	S54Nebr-69-	2-(1-8) LAE	3. NOS. 218	35-2193	******
	l l f		CLE SIZE DISTRIBUTION	Y (in mm.) (per cent)	3A1 2A2	
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	0-7 Alp 7-13 812	- 0.3 0.5 - 0.1 0.2	1.6   14.2   61. 0-7   11.0   58.	.4 22.0 59.1 .4 29.6 53.5	17.5 - 8	oil vicl
<u></u>						

Soil type: Roldrege silt loam Soil No.: 354Nebr-69-2-(1-8)

Location: 350 feet north and 250 feet east of southwest corner Sec. 25, Ton, R19W; 1 mile north and 3 miles west of Holdrege, Phelps County,

Nebraska. (North of school yard.)

Topography: Smooth, slightly convex 2 percent west facing slope with slight erosion. Gently undulating losss plain with slight relief.

Use: Summer fallow 1954. Wheat and summer fallow for past ten years with corn and wheat prior to that. Farmed for many years but no estimate of how many.

Described by: B. H. Williams.

#### Mandan

Lab.

No. Horizon Depth

2186 Alp 0-7" Dark grayish brown (10YR 1/2, dry) very dark grayish brown (10YR 3/2, moist) silt loam; moderate fine granular structure; soft, dry; very friable moist; abrupt smooth boundary.

2167 Al2 7-13" Dark gray (10YR 1/1.5, dry) very dark brown (10YR 2.5/2, moist) heavy silt loam; strong medium and fine granular structure; slightly hard dry, friable moist; noncal careous; many fine pores, many worm casts; clear smooth boundary.

2188 A3 13-16" Dark grayish brown (10YR 1/2, dry) very dark grayish brown (10YR 3/2, moist) light silty clay loam; strong medium and fine granular structure; slightly hard dry, friable moist; many fine roots; considerable mixing of soil material by insects; clear smooth boundary.

2189 B21 16-24" Grayish brown (10TR 5/2, dry) dark grayish brown (10TR 4/2, moist) mixed by insects, some movement of darker materials along aggregate faces, silty clay loam; weak coarse prismatic breaking to strong medium and fine blocky structure; hard dry, friable moist; many fine and medium pores and a few open insect burrows, abundant roots; noncalcareous; clear smooth boundary.

2190 B22 24-30" Light brownish gray (10YR 6/2.5, dry) brown (10YR 5/3, moist) silty clay loam; weak coarse prigmatic breaking to moderate medium and fine subangular blocky structure; slightly hard dry, friable moist; many fine and medium pores; some large open insect burrows and a few insect burrows filled with darker soil materials; fine roots plentiful; noncalcareous; clear smooth boundary.

2191 B3 30-34" Pale brown (10YR 6/3, dry) grayish brown (10YR 5/2.5, moist) silt loam or light silty clay loam; moderate coarse prismatic breaking to moderate medium subangular blocky structure; slightly hard dry, very friable moist; many medium and fine pores, a few dark-colored worm casts; few fine roots; noncalcareous; clear smooth boundary.

2192 B<sub>Ca</sub> 34-42" Light gray or pale brown (10YR 7/2.5, dry) light brownish gray (10YR 6/2.5, moist) silt loam with a few worm casts

of darker material (10YR 5/3, moist) moderate coarse prismatic breaking to moderate medium to very coarse subangular blocky structure; few fine roots; calcareous throughout with many soft white concretions and spots of CaCO3; many fine and medium pores and root openings, walls of most coated with CaCO3; gradual smooth boundary.

2103 C., 12x600 11abb ---- 1100P-010 1 -- 12-00 d'- 1 --

## **SOIL SURVEY LABORATORY**

## SOIL TYPE <u>Hord silt loam</u>

Mandan, N. Dak.

SOIL NO. S50Nebr-10-2-(1-7)

DEFTIN   MORIZON   CAMEST	***		l	lBla		PARTIC	CLE SIZE D	ISTRIBUTIO	N (in m	im.) /n	er cent)	BAl		ı İ	,
313		IN	HORIZON	VERY COARSE SAND	SAND	MEDIUM SAND	FINE SAND	VERY FINE	SILT	CLAY			<b>&gt;</b> 2		
SATURATED   1:5   1:10   0   0   0   0   0   0   0   0   0	314 315 316 317 318	5-9 9-15 15-22 22-31 31-44	A12 A13 B1 B2 B3	- - - -	0.3 0.4 - 0.3 0.1	1.3 1.7 1.5 1.2 1.0	7.9 10.0 10.6 15.2 10.2	14.5 16.3 16.4 17.3 19.3	56.6 52.6 49.1 42.6 49.6	19.4 19.0 22.4 23.4 19.8	14.0 15.0 13.0 9.9 11.0	62.0 60.3 59.2 59.9 65.1	- - -	sil sil l	
SATURATED   1:5   1:10   0   0   0   0   0   0   0   0   0			pH	1	ORG	ANIC MAT	I Iter	<sub>сот</sub> 8 <u>8</u> 2	ELECTRICAL	0.000	OVOCULA	MOIS	STURE TEN	SIONS	
314 6.7 6.8 7.0 1.23		PASTE			CARBON	2 NITROGEN	C/N	SALT (BUREAU	TIVITY EC x 10 3 MILLIMHOS	equivalent per cent	me./100g SOU	ATMOS.	1/3	ATMOS.	
EXTRACTABLE   EXCHANGEABILE   CRIMMS   CO3   HCO3   CI   SO4   SATURATION	314 315 316 317 318	6.7 7.2 7.5 7.8 8.1	6.8 7.4 7.6 8.0 8.4	7.0 7.5 7.8 8.2 8.6	1.23 1.14 0.82 0.49 0.29				1.0 0.5 0.6 0.6	tr - tr tr	- - -			8.5 8.4 9.4 10.7 9.6	
313 16.3 9.8 3.3 0.6 1.8 4 2.6 0.7 314 17.0 10.5 3.7 0.8 1.2 5 4.5 1.6 315 16.6 10.0 3.8 0.9 1.2 5 3.8 3.3 316 17.8 9.5 4.9 0.9 1.8 5 5.9 4.4 317 17.9 7.9 8.3 1.3 2.3 7 4.0 4.5 318 17.5 6.2 9.0 1.9 2.9 11 5.8 2.8	•	EXCHANGE CAPACITY	EXTRAC 6N2b Ca.	TABLE 602h Mg	EXCHAN 6P2s Na	GEABIE 602e	EXCHANGE- ABLE SOURM PERCENTAGE		6Q1а к	CO 3	HCO3	ÇI	SO <sub>4</sub>	PER CENT MOISTURE AT	
AGR-454-86119VILLE, MD 2562 JUNE 198	313 314 315 316 317 318	16.3 17.0 16.6 17.8 17.9	9.8 10.5 10.0 9.5 7.9	3.3 3.7 3.8 4.9 8.3	0.6 0.8 0.9 0.9 1.3	1.2 1.8 2.3 2.9	4 5 5 7 11	4.5 3.8 5.0 4.8	0.7 1.6 3.4 4.5 2.8	mieguvan	nus per me		•	42.5 41.8 41.8 44.5 9.0 41.0	

Soil type: Hord silt loam

Soil No.: S50Nebr-10-2-(1-7)

Location: 50 feet south of road and 900 feet west of northeast corner of northwest

quarter of Sec. 15, T9N, R13W, Buffalo County, Nebraska.

Topography: Platte River Valley terrace, slope under 1 percent.

Drainage: Moderately good. Erosion: Little, if any. Parent material: Stream reworked and deposited aeolian materials.

Land use: Irrigated corn in 1950. Described by: B. H. Williams.

concretions.

Date: July 12, 1950.

## Horizon and Mandan Lab. Number

319

Alp 313	O to 5 inches. Silt loam; granular, friable, 10YR 3/2 moist; abrupt lower boundary.
A12 314	5 to 9 inches. Silt loam; large blocky, granular, friable, 10YR 2/2 moist; gradual boundary.
A13 315	9 to 15 inches. Silt loam; blocky, grumb, friable, 10YR 3/2 moist; gradual boundary.
B1 316	15 to 22 inches. Silt loam, heavy; blocky, crumb, friable, 10YR 3/2 moist; gradual boundary.
B2 317	22 to 31 inches. Silty clay loam, heavy; strong blocky, moderately hard, dry; friable, moist, 10YR 4/3 moist; gradual boundary.
B3 318	31 to 44 inches. Silty clay loam; strong blocky, friable, plastic, 10YR 5/2 moist; abrupt lower boundary.
C	44 to 62 inches. Silt loam; massive, friable, 2.5Y 8/4 moist, calcareous

SOIL TYPE Hord silt loam

Mandan, North Dakota

SOIL NO. <u>S51Nebr-40-12-(1-7)</u>

		I	1Bla		DADTI	1 E 017E D	ISTRIBUTIO	N (in rr	m) (-	er cent) 3	Al		<del>-</del>	<u> </u>
LABORATORY NUMBER	DEPTH IN INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY		0.2-	2A2 > 2	TEXTURAL CLASS	
	_	_	2-1	1 - 0.5	0.5 - 0.25	0.25-0.10	0.10-0.05	0.05-0.002	<0.002	0.02-0.002	0.02	(<19mm	)	
956 957 958 959	0-6 6-16 16-26 26-36	Alp Al2 B2 Alb	0.3 0.1 0.1	0.3 0.2 0.2 0.2	0.9 0.5 0.5	1.7 1.8 4.1 2.2	18.6 14.5 10.4 26.2	53-4 61.5 57.8 44.8	24.8 21.4 26.9 25.9	15.2 17.2 18.4 12.0	57-3 59-9 53-0 60.6	-	sil sil sil	
960 961 962	36-46 46-56 56-66	B21b B22b Clbca	0.1 0.1 1.2	0.3 0.2 0.1	0.6 0.4 0.5	1.5 1.4 0.7	14.7 6.7 13.5	55•3 55•9 50•4	27.5 35.3 33.6	22.3 24.6 18.5	48.6 38.6 45.7	- Tr. a	sicl- sicl	sil
		рН		ORG	ANIC MAT	TER	EST. #2	ELECTRICAL CONDUC-	CaCO3	GYPSUM	MOIS	STURE TEN	SIONS	
	SATURATED PASTE 8C1b	1:5 8Cla	1:10 8Cla	ORGANIC CARBON 6Ala	* NITROGEN	C/N	SALT (BUREAU CUP)	TIVITY EC x 10 3 MILLIMHOS PER CM BALA	equivalent per cent 6阳点	me./100g SOIL 6Fla	1/10 ATMOS.	(per cent) 1/3 ATMOS.	15 ATMOS. 14782	
	6.3 6.2 6.0	6.7 6.6 6.5	6.8 6.7 7.0	1.62 1.28 0.62			- - -	0.5 0.4 0.4	tr tr tr	-			10.0 10.4 12.0	
	7.2 7.6 7.6	7.3 8.0 8.3 7.7	7.8 8.3 8.4 7.8	0.40 0.38 0.39 0.28			0.20	0.4 0.5 0.8 3.6	tr tr tr 2	- - 34			12.5 12.7 16.2 16.2	
	cation.	5Bla	·		5Blb	502		-		CTRACT SOL	11B) E 8 <b>4</b>	<u> </u>	8A	
	1	EXTRAC.	ABLE	IONS ECHAN	EABLE	EXCHANGE-	6P1e		KATION E		JOLE OFF	<u>.</u>	PER CENT	
	EXCHANGE CAPACITY NED ORCH	Ca 6 N2b nilliequivalent	Мg 602ъ	6P2a	602a	ABLE Sookum Percentare ESP	Na Na	ĸ	CO 3	HCO <sub>3</sub>	CI r	SO 4 →	MOISTURE AT SATURATION	
	18.9 18.6 18.9 19.4 20.3 25.1 23.9	11.6 11.2 9.7 9.3 9.7 13.8	3.3 4.1 6.7 5.6 7.2 8.3	0.3 0.3 0.8 1.1 1.2 0.9	1.6 0.7 1.2 2.2 3.0 3.8 3.5	2 2 2 4 5 5 4	0.6 0.9 1.5 1.7 3.5 7.8	0.4 tr 0.2 0.2 0.4 1.2					46.2 52.1 54.1 50.7 46.8 59.2 62.7	
	a. L	argely (	alcar	ous c	pncret	ions.								
											AGR-	\$CS-SELTSVILLI	- I, MB 8602 .	 

Soil type: Hord silt loam

Soil type: Hord silt loam
Soil No.: S51Nebr-40-12-(1-7)
Location: SEL/4, NEL/4, Sec. 6, TllN, RllW, Hall County, Nebraska.
Vegetation: Cat stubble and sweet clover.
Parent material: Loess.
Physiographic position: Terrace.
Topography: Level plain.

Slope: 0.

Erosion: None or slight. Drainage: Excellent. Moisture: Moist. Stoniness: None. Root distribution: Good. Described by: B. H. Williams. Date: October 10, 1951.

Mandan

0-6 inches. Dark gray (10YR  $\frac{4}{1}$  dry) to very dark brown (10YR  $\frac{2}{2}$  moist) silt loam, soft granular; friable when moist, soft to slightly hard when dry. 956 Alp

957	A12	6-16 inches. Grayish brown (10YR 5/2 dry) to very dark brown (10YR 2/2 moist) silt loam; granu-
		lar: friable.

958	B2	16-26 inches. Grayish brown (10YR 5/2 dry) to dark grayish brown (10YR 4/2 moist) silt loam; sub-
		angular blocky, friable when moist; slightly hard when dry.

959	МŢЪ	26-36 inches. Dark grayish brown (10YR 4/2 dry) to very dark grayish brown (10YR 3/2 moist)
		heavy silt loam; subangular blocky; friable.

960 36-46 inches. Grayish brown (10YR 5/2.5 dry) to dark gray (10YR 4/1.5 moist) silt loam; crumb; B21b friable.

961 46-56 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam, B22b friable.

962 Clbca 56-66 inches. Pale brown (10YR 6/2.5 dry) to dark grayish brown (10YR 4/2 moist) heavy silt loam or light silty clay loam; subangular, blocky; thread-like streaks and medium-sized spots and flecks of calcium carbonate and other salts present; friable.

## SOIL SURVEY LABORATORY

# SOIL TYPE Hord silt loam

Mandan, North Dakota

SOTL NO. S52Nebr-40-4-(1-7)

ABORATORY			lBla		PARTIC	LE SIZE DI	STRIBUTIO	N (în m	m.) (P	er cent) 3,4	1			1
	DEPTH IN	HORIZON	VERY COARSE	COARSE	MEDIUM	FINE	VERY FINE		CLAY		<u> </u>	2A2	TEXTURAL	
NUMBER	INCHES		SAND	SAND	SAND	SAND	SAND			1	'	> ²	CLASS	
			2-1	1-0.5	0.5 - 0.25	0,25-0.10	0.10-0.05	0.05-0.002	<0.002	0.02-0.002	0.2-0.02	( <b>19mm</b> )		╙
1192	Λ	42-	^ <b>^</b>	∩ <i>E</i>	0.0	١, ,	7, 5	47 6	20.1	26.3	/^ ^			
	0-6 6-16	Al2 Alp	0.2	0.5	0,9 1.0	1.9	14.5 14.8	61.6 56.4	20.4	15.1 15.0	62.2 57.7		sil sil	
	5-23	B21		0.4	0.9	2.1	18.0	53.9	24.7	12.1	61.1	_	sil	
	3-35	B22	0.1	0.7	1.1	1.7	15.3	56.5	24.6	14.2	58.6		sil	
1196 35	5-46	C	0.4	0.8	1.1	2.4	32.1	45.4	17.8	8.3	70.7	==	1	
	6-58	Dl	1.3	4.4		17.5	12.2	36.6	17.3	10.3	46.6	Tr.	1	
1198 58	3-66	D2	0.5	1.1	1.2	1.6	2.2	59.5	33.9	41.8	20.7		sicl	
-		pH		ORG	ANIC MAT	ITER	SA2 EST. X	ELECTRICAL	CaCO3	GYPSUM	MOIS	TURE TEN	SIONS	Т
				≴ ORGANIC	x		SALT	CONDUC-	equivalent		1410	(per cent)	15	
SA	ATURATED PASTE	1:5	1:10	ORGANIC CARBON	NITROGEN	C/N	(BUREAU	EC x 10 3	per cent	me./100g	1/10 ATMOS.	1/3 ATMOS.	ATMOS.	
	8стр	8cla	8cla	6Ala			CUP <sup>1</sup>	PER CM SALA	6Fla	SIL OFIA	mmog.	Aimos.	4B2	
	_													
	6.1	6.8	7.0	1.95			<b>—</b>	0.4	tr	<b>—</b>			10.7	
	5.8	6.7	6.7	1.34			_	0.3	tr				12.6	
	6.2 6.5	7.1 7.4	7.2 7.5	0.76			_	0.3	tr tr	_			12.2 12.3	
	6.8	7.8	7.9	0.21				0.3	tr				9.4	
	7.4	8.5	8.6	0.15				0.7	tr				8.6	
	7.7	8.9	9.1	0.33				0.6	4				19.2	
				-					•					
	canon	5Bla	CAT	ions	5ви	502		ŞATU	IRATION E	KTRACT SOL	UBLE 8A	1	8 <b>A</b>	$\vdash$
		EXTRAC!	ABLE		GEABLE		6Pla	6Q1a					PER CENT MOISTURE	
	EXCHANGE	Ca 6N2b	Mg 602b	6P2a	602a	ABLE Soonum	Na	- <del>K</del>	CO <sub>3</sub>	HCO <sub>3</sub>	CI	SO <sub>4</sub>	AT	
<u>~</u>	CAPACITY	tneleviupsilli,			Owaza  -	PERCENTAGE ESP	<del>-</del>		jilijiequiva)	ents per lite	ŗ	ا ء	SATURATION	
	- 74 11 2		· •				_				<u> </u>	Ī		Г
1	19.6	12.4	3.5	0.1	1.9		0.6	0.9					42.8	
I	20.6	12.2	4.0	0.1	1.7		0.2	0.5					46.4	
	19.6	12.0	4.2	0.1	2.0	<del>-</del>	0.2	0.9					50.3	
	20.0 L6.3	12.4	4.9 4.3	0.1	1.8	1	0.6	0.5					53.3 44.7	
	L5.1	10.2	4.4	0.3	1.8	2	2.2	0.9					36.1	
I	30.9		~~~	1.5	3.9	5	3.7	0.9					64.4	
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													,, mb 2402 .	

Soil No: S52Nebr-40-4-(1-7)

Date: September 1952

County: Hall County, Nebrasks.

Location: 150 feet north and 100 feet west of southeast corner Sec. 31, Till RiOW.

Described by: B. H Williams.

Mandan

lab.No. Horizon

1192 Alp 0-6 inches. Very dark gray (10YR 3/1 moist) to gray (10YR 5/1 dry) fine granular, friable, silt

1193 Al2 6-16 inches. Very dark brown (10YR 2/3 moist) to dark gray (10YR 4/1 dry) granular, friable, silt

medium blocky, friable, heavy silt loam; includes 1- or 2-inch layer fil transition. 23-35 inches. Dark grayish brown (10YR 4/2 moist) to light brownish gray (10YR 6/2 dry) medium 1195 **B22** blocky, friable, heavy silt loam. 35-46 inches. Grayish brown (10YR 5/2 moist) to light brownish gray (10YR 5.5/2 dry) massive to 1196 C weak subangular blocky, friable, silt loam containing a fairly high proportion of coarse silt and noticeable very fine sand. 46-58 inches. Pale brown and grayish brown, moist, stratified silt loam, loam, fine sandy loam and loamy sand alluvium. Strata appreciably distorted from the horizontal. 1197 m 1198 58-66 inches. Dark grayish brown (10YR 4/2 moist) to light brownish gray (10YR 6/2 dry) massive 122 to weak blocky slit loam; friable, an old dark colored soil or dark sedimentary layer; strongly calcareous, including an abundance of white spots and seams of lime carbonate. None of the white spots seem to be of other kinds of salts.

Note: Auger examination below 66 inches; from 66 to 112 inches is loamy alluvium that becomes sandier with depth; fine sand below 112 inches.

SOIL SURVEY LABORATORY

SOIL TYPE Hord silt loam

mandan, North Dakota

SOIL NO. \_\_\_\_S52Nebr-40-5-(1-9)

	_						_	SOLL	1 110.				<u></u>		
-		ı	1	lBla		PARTIC	1 E S17E D	ISTRIBUTIO	N (in F	nm ) /n	er cent)3A	1		1 T	_
	LABORATORY NUMBER	DEPTH IN INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	T T	FINE SAND	VERY FINE SAND	SILT	CLAY			> 2	TEXTURAL CLASS	
1,			1	ł <sup>7-1</sup> ,	<u>  [-</u> ]U.5	10.5-0.231	ນ ຂນ-ກ <sup>ະ</sup> ກັ	_tt.16-0.05	U.US-U.UUZ	1 / H 1009	BJ.UZ-U.(RJZ)		•	' '	
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<del>-' -</del>	48			L		'	1	<u> </u>	<u> </u>	<u>'</u>	<u> </u>		7.		
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Soil Type: Hord silt loam S52Nebr-40-5-(1-9) Soil No.:

Date: September 1952

County: Hall County, Nebraska. Location: Nw1/4 of Sw1/4 of Sec. 10, Tion, Rliw. Described by: B. H. Williams.

Mandan Lab. No. 1199	Horizon Alp	0-6 inches. Dark gray (10YR 4/1 moist) to gray (10YR 5/1.5 dry) granular, friable, silt loam.
1200	Al2	6-11 inches. Very dark grayish brown (10YR $3/2$ moist) to grayish brown (10YR $5/2$ dry) granular, friable, silt loam.
1201	B21	11-19 inches. Very dark grayish brown (10YR 3/2 moist) to grayish brown (10YR 5/2 dry) medium blocky, friable, heavy silt losm; includes probably 1 inch of AB transition.
1202	B22	19-24 inches. Dark grayish brown (10YR 4/2 moist) to light brownish gray (10YR 6/2 dry) heavy silt loam; weak blocky, friable.
1203	B31	24-31 inches. Pale brown (10YR 5.5/3 moist) to light brownish gray (10YR 6.5/2 dry) weak blocky, very friable silt loam.
1204	в32	31-41 inches. Fale brown (10YR 6/3 moist) to light gray (10YR 7/2 dry) very friable silt loam, on light side; weak vertical but no horizontal cleavage.
1205	CJ.	41-49 inches. Light brownish gray (10YR 6/2 moist) to light gray (10YR 7/2 dry) stratified very fine sandy losm and silt losm but over all of very fine sandy losm texture; firm in place but very friable when disturbed.
1206	C2ca	49-54 inches. Grayish brown (2.5Y 5/2 moist) to light gray (10YR 7/2 dry) silt loam with thin lenses of very fine sandy loam; numerous spots and seams of free lime carbonate; firm in place but frisble when disturbed.
1207	<b>c</b> 3	54-62 inches. About same as horizon next above except very fine sandy loam and less free lime.

Note: Stratified sandy and silty materials continue down to a nearly black buried soil at a depth of  $6\frac{1}{2}$  feet. The buried soil is silt loam in the upper part and silty clay or silty clay loam in lower part and about dark grayish brown color in the heavy layer at 10 feet,  $\frac{1}{4}$  inches, the lowest depth examined; no free lime in the darkest upper part of the buried soil but slightly calcareous below  $9\frac{1}{2}$  feet. This profile has weaker B horizon development and probably less clay in the B than S52Nebr- $\frac{1}{4}$ 0- $\frac{1}{4}$ . Both this profile and S52Nebr- $\frac{1}{4}$ 0- $\frac{1}{4}$  are associated with the youngest soils on terrace alluvium and probably have less clayey B2 horizons than where associated with Wood River soils.

	SOIL	SURVEY	LABORAT	rory	Lincoln,	Nebr.	<u>N</u>	by 1959
	SOIL	TYPE Ke	eith lt loam	LO	CATION	Deuel	County, Nebra	ska
	·	NOS.					9417-942	
	DEPTH INCHES	HORIZON COARSE SAND 2-1	COARSE MEDIUM SAND SAND 1-0.5 0.5-0.25	FINE   SAND   S	PRY FINE AND SILT 10-0.05 0.05-0.00	CLAY	0.2-0.02 202-0.002 64.5 13.7	2A2 TEXTURAL CLASS
			<u>+</u>					
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1								

Soil type: Keith silt loam

Soil No.: S58Nebr-25-5-(1-7)

Location: 225 feet south and 135 feet east of west quarter corner Sec. 7,

THAN, RAIW; approximately 10 miles north of Rig Springs, Deuel

County, Nebraska.

Physiography: Loessial uplands.

Relief: 20 to 40 feet.

Clope: 1 to 2 percent smooth convex slope.

Aspect: South facing slope. Parent material: Loess. Drainage: Well drained. Permeability: Moderate. Salt or alkali: None.

Land use: Wheat 1958.

Climate: Average annual precipitation 18.5 inches; average annual temperature 49°F.

Collected by and date: John Elder, W. McKinzie, Robert Jordan, October 24, 1958.

#### Lincoln

Lab.

No. Horizon

- 9417 Alp 0-6", Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam; weak coarse subangular blocky; dry slightly hard, moist very friable; noncalcareous; abrupt smooth boundary.
- 9418 B21 6-12", Brown (10TR 4/3 dry) to dark brown (10TR 3/3 moist) silt losm; weak coarse prismatic breaking to weak medium subangular blocks; dry slightly hard, moist very friable; noncalcareous; clear smooth boundary.
- 9419 B22 12-16", Brown (10YR 4/3 dry) to very dark grayish brown (10YR 3/2 moist) silt loam; weak coarse prismatic breaking to weak fine and medium subangular blocks; dry slightly hard, moist very friable; noncalcareous; clear smooth boundary.
- 9420 B3 16-24", Pale brown (10YR 6/3 dry) to dark brown (10YR 4/3 moist) silt loam; weak coarse prismatic breaking to weak medium subangular blocks; dry soft, moist very friable; noncalcareous; abrupt smooth boundary.
- 9421 Cca 24-34", Light gray (10YR 7/2 dry) to brown (10YR 5/3 moist) silt loam; weak coarse prismatic; dry soft, moist very friable; viclent effervescence; gradual smooth boundary.
- 9422 C2 34-41", light gray (10YR 7/2 dry) to pale brown (10YR 6/3 moist) silt loam; massive; dry soft, moist very friable; violent effervescence; gradual smooth boundary.
- 9423 C3 41-60", Light gray (10YR 7/2 dry) to pale brown (10YR 6/3 moist) silt loam; massive; dry soft, moist very friable; violent effervescence.

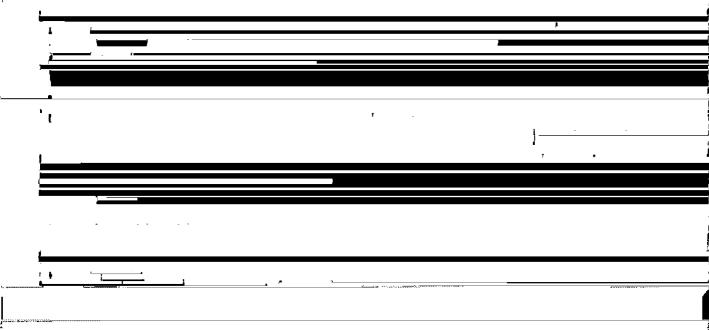
Worm activity throughout profile and very prominent in the B3 horizon. Horizons Alp. B21 and Cca sampled for Bureau of Public Roads

SOIL SURVEY LABORATORY Lincoln, Nebr. May 1959

SOIL TYPE Keith LOCATION Deuel County, Nebraska silt loam

SOIL NOS. <u>\$58Nebr-25-6-(1-7)</u> LAB. NOS. <u>9424-9430</u>

**************************************		lBla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent) 3	AI		
DEPTH		VERY				VERY					2A2	TEXTURAL
	HCRIZON	COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	FINE SAND	SILT	CLAY			<b>&gt;</b> 2	CLA\$\$
		2-1	1-0.5	0.5-0.25	0. 25-0. 10	0.10-0.05	0.05-0.002	< 0.002	C. 2-0.02	0.02-0.002		
0-6	Alp	0.1	0.2	0.1	2.1	31.9	46.1	19.5	67.5	12.3		1
6-11	B21	<0.1	0.1	0.1	1.9	30.8	44.3	22.8	64.2	12.5	-	1
11-19	B22	<0.1	0.1	0.1	1.7	28.5	44.7	24.9	60.2	14.5	-	1
19-23	<b>B</b> 3	<0.1	0.1	0.1	1.9	29.7	46.8	21.4	62.5	15.7	-	1
23-35	Cca	<0.1	<0.1	<0.1	1.5a	<b>32.</b> 7a.	51.4	14.4	67.5	18.0	-	sil
35-46	<b>C</b> 2	<0.1	0.1	0.1	1.7a	38.6a	45.8	13.7	72.2	13.7	-	1
46-60	C3	<0.1	<0.1	<0.1	بالم ا	42.9a	43.6_	11.1	77.6	11.2		11



Soil type: Keith silt loam
Soil No.: S58Nebr-25-6-(1-7)

Soil No.: S58Nebr-25-6-(1-7)

Location: .15 mile south and 160 feet east of west quarter corner Sec. 2.

T14N, R42W; approximately 10.5 miles north and 2 miles west of Big

87

Springs, Deuel County, Nebraska.

Physiography: Loessial uplands.

Relief: 20 to 40 feet.

Slope: 1 to 2 percent convex. Aspect: South facing slope. Parent material: Loess. Drainage: Well drained.

Permeability: Moderate. Salt or alkali: Mone. Iand use: Wheat 1958.

Climate: Average annual precipitation 13.5 inches; average annual temperature 49°F. Collected by and date: John Elder, Robert Jordan and W. McKinzie, Oct. 24, 1958.

## Lincoln

Lab.

No. Horizon

9424 Alp C-6", Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam; weak coarse subangular blocky; dry slightly hard, moist very friable; noncalcareous; abrupt smooth boundary.

9425 B21 6-11", Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam: weak coarse prismatic breaking to

calcareous; clear smooth boundary.

9426 B22 11-19", Brown (10YR 5/3 dry) to dark brown (10YR 3/3 moist) silt loam; weak coarse prismatic breaking to weak fine and medium subangular blocks; dry slightly hard, moist very friable; non-calcareous; clear smooth boundary.

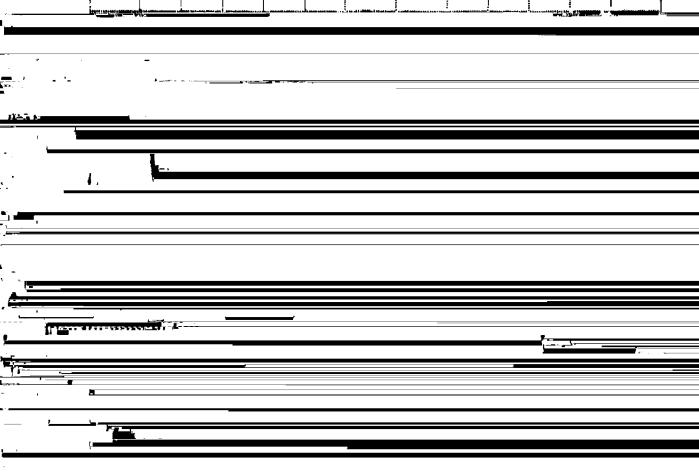
9427 B3 19-23", Light brownish gray (10Y. 6/2 dry) to dark grayish brown (10YR 4/2 moist) silt loam; weak coarse prismatic breaking to weak medium subangular blocks; dry soft, moist very friable; noncalcareous; abrupt wavy boundary.

SOIL SURVEY LABORATORY Mandan, N. Dak. 9/21/55

SOIL TYPE Keith LOCATION Hitchcock County, Nebraska silt loam

SOIL NOS. S54Nebr-h4-2-(1-7) LAB. NOS. 2395-2401

	1	1111	• • • • • • • •	FARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent) 3	Al.		
DEPTH		VERY				VERY	,				2A2	TEXTURAL
INCHES	HORIZON	COARSE	COARSE SAND	MEDIUM	FINE	FINE	SILT	CLAY		į	> 2	CLAS4
		2.1	1.0.5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	< 0 002	0. 2-0.02	007-0007		ļ
0-5	Alp		0.lb	0.2	1.0	28.0	52.4	18.3	66.9	14.1	_	sil
5-9	A12			0.1Ъ	0.3	20.2	55.4	24.0	60.3	15.5	-	sil
9-14	B21	-		0.1b	0.4	18.3	55.2	26.0	58.1	15.6	-	sil
14-23	B22		_	-	0.5	18.0	54.9	26.6	58.6	14.7	-	sil
23-33	Bca	-	0.1	0.2	1.1	22.1	50.4	26.1	57.6	15.4	-	sil
33-45	Cca	-	0.25	0.3	1.1	27.7	53.4	17.3	61.0	20.7	-	sil
45-60	C	-		0.2b	0.9	30.7	53.3	14.9	66,1	18.4	-	sil
									[			
								[ '	†		1 <b>1</b>	1



Soil type: Keith silt loam

Soil No.: S54Nebr-44-2-(1-7)

Location: .2 mile south and 110 feet east of northwest corner Sec. 13, TlN,

R34W; 8 miles south and 5 miles west of Trenton, Hitchcock County,

Nebraska.

Topography: Southeast facing slope of 1 to 2 percent gradient near the edge of

a broad gently undulating remnant of a losss-mantled plain; the

slope becomes steeper to the west.

Described by: B. H. Williams.

### Mandan

Lab.

Mr. Howleon Depti

2395 A<sub>lp</sub> 0-5" Dark grayish brown (10YR 1/1.5, dry) to very dark grayish brown (10YR 3/2, mcist) silt loam; moderate fine granular structure; soft, dry; friable, moist; abrupt smooth lower boundary.

2396 A<sub>12</sub> 5-9" Dark grayish brown (10YR 1/2, dry) to very dark grayish brown (10YR 3/2, noist) silt loam; moderate fine granular structure with vertical cleavage planes giving weak very coarse prisms; slightly hard, dry; friable, moist; clear smooth lower boundary.

2397 B<sub>21</sub> 9-14" Dark grayish brown (10YR h.5/2, dry) to very dark grayish brown (10YR 3.5/2, moist) silty clay loam; compound moderate coarse and medium prismatic and weak coarse and medium blocky structure with better defined vertical than horizontal cleavage; slightly hard, dry; friable, moist; clear smooth lower boundary.

2398 B<sub>22</sub> ll<sub>4</sub>-23" Grayish brown (lOYR 5/2.5, dry) to dark grayish brown (lOYR l<sub>2</sub>/2, moist) silty clay loam; compound moderate medium and coarse prismatic and weak medium and fine blocky structure; slightly hard, dry; friable, moist; clear smooth lower boundary.

2399 B<sub>ca</sub> 23-33" Light gray (10TR 7/2, dry) to pale brown (10YR 6/3, moist) heavy silt loam; weak subangular blocky structure with fairly well defined vertical cleavage; soft, dry; very friable, moist; calcareous; gradual lower boundary.

2400 Cca 33-45" Light gray (10YR 7/2.5, dry) to pale brown (10YR 6/3, moist

SOIL TYPE Keith LCCATION Hitchcock County, Nebraska

SOIL NOS. 554Nebr-44-3-(1-7) LAB. NOS. 24-02-24-08

10-13 Bl - 0.1 0.3 0.9 19.9 52.4 26.4 56.8 1 13-20 B2 0.1 0.4 21.6 52.3 25.6 57.8 1 20-30 Bca - 0.1 0.3 1.3 21.5 52.1 24.7 56.6 1 30-42 Cca - 0.1 0.6 24.0 55.4 19.9 58.9 2 42-60 C - 0.3 0.3 1.2 28.1 53.9 16.2 63.4 1  PH ORGANIC MATTER  8CID 8Cla 8Cla 6Ala 6Rla CRGANIC NITRO-CARBON GEN C'N GEN CUP)  PASTE 1:5 1:10 CARBON GEN C'N GEN CUP)  8 7.5 7.8 1.21 .104 11.6 6.9 7.8 7.9 0.82 .078 10.5 7.0 7.9 8.0 0.69 .071 9.7 7.1 8.1 8.2 0.57 .064 8.9 7.9 8.8 9.0 0.40 .052 7.7 3 3		416 15 ATMOS 9.8 12.8
0-6 Alp 0.lb 0.lb 0.2 0.9 24.3 53.9 20.5 62.2 1 6-10 Al2 0.lb 0.5 19.6 53.4 26.4 56.7 1 10-13 Bl - 0.l 0.3 0.9 19.9 52.4 26.4 56.8 1 13-20 B2 0.l 0.4 21.6 52.3 25.6 57.8 1 20-30 Bca - 0.l 0.3 1.3 21.5 52.1 24.7 56.6 1 30-42 Cca 0.l 0.6 24.0 55.4 19.9 58.9 2 42-60 C - 0.3 0.3 1.2 28.l 53.9 16.2 63.4 1	16.5 - 16.6 - 16.0 - 16.4 - 17.8 - 20.9 - 19.3 - MOISTURE TI	sil sil sil sil sil sil sil sil sil sil
6-10 A12 0.1b 0.5 19.6 53.4 26.4 56.7 1 10-13 B1 - 0.1 0.3 0.9 19.9 52.4 26.4 56.8 1 13-20 B2 0.1 0.4 21.6 52.3 25.6 57.8 1 20-30 Bca - 0.1 0.3 1.3 21.5 52.1 24.7 56.6 1 30-42 Cca - 0.1 0.6 24.0 55.4 19.9 58.9 2 42-60 C - 0.3 0.3 1.2 28.1 53.9 16.2 63.4 1   PH ORGANIC MATTER  ACID RATED  PASTE  1:5 1:10 CARBON GEN C/N GEN CUP)  RATED  1:10 CARBON GEN C/N GUP  RATED  1:10 CARBON GEN CUP)  REC CALO GUPSUM GEN CUP  A	16.6 - 16.0 - 16.4 - 17.8 - 20.9 - 19.3 - MOISTURE TI 1/10 1/3 ATMOS. ATMOS.	sil sil sil sil sil sil sil sil sil sil
6-10 A12 0.1 0.5 19.6 53.4 26.4 56.7 1 10-13 B1 - 0.1 0.3 0.9 19.9 52.4 26.4 56.8 1 13-20 B2 0.1 0.4 21.6 52.3 25.6 57.8 1 20-30 Bca - 0.1 0.3 1.3 21.5 52.1 24.7 56.6 1 30-42 Cca 0.1 0.6 24.0 55.4 19.9 58.9 2 42-60 C - 0.3 0.3 1.2 28.1 53.9 16.2 63.4 1  PM ORGANIC MATTER  ACID SCIA SCIA GAIA GEIA CONDUCTIVITY CONDUCT	16.0 16.4 17.8 20.9 19.3  MOISTURE TI 1/10 1/3 ATMOS. ATMOS.	sil sil sil sil sil sil sil sil sil 15 ATMOS
10-13 Bl - 0.1 0.3 0.9 19.9 52.4 26.4 56.8 1 13-20 B2 0.1 0.4 21.6 52.3 25.6 57.8 1 20-30 Bca - 0.1 0.3 1.3 21.5 52.1 24.7 56.6 1 30-42 Cca - 0.1 0.6 24.0 55.4 19.9 58.9 2 42-60 C - 0.3 0.3 1.2 28.1 53.9 16.2 63.4 1   PH ORGANIC MATTER  ACID SCIR SCIR GAIR GEN C/N SALTAU CONDUCTIVITY RATED 1:5 1:10 CARBON GEN C/N CUP) MILLIMHUS GION SOIL ACCORD GEN CONDUCTIVITY  RATED 1:5 7.8 1.21 .104 11.6 CUP) MILLIMHUS GION SOIL ACCORD GEN CUP CUP CONDUCTIVITY  8.1 7.9 8.8 9.0 0.69 .071 9.7 - 7.1 8.1 8.2 0.57 .064 8.9 7.9 8.8 9.0 0.40 .052 7.7 3 3	16.0 16.4 17.8 20.9 19.3  MOISTURE TI 1/10 1/3 ATMOS. ATMOS.	sil sil sil sil sil sil sil sil 15 ATMOS
13-20 B2 0.1 0.4 21.6 52.3 25.6 57.8 1 20-30 Bca - 0.1 0.3 1.3 21.5 52.1 24.7 56.6 1 30-42 Cca 0.1 0.6 24.0 55.4 19.9 58.9 2 42-60 C - 0.3 0.3 1.2 28.1 53.9 16.2 63.4 1   PH ORGANIC MATTER  8CID 8Cla 8Cla 6Ala 6Ela CONDUCTIVITO COOD MILLIMHOS Glen CVN CUP)  PASTE 1:0 CARBON GEN C/N CUP)  8.1 10 CARBON GEN CVN CUP)  8.2 7.5 7.8 1.21 .104 11.6 6.9 7.8 7.9 0.82 .078 10.5 7.0 7.9 8.0 0.69 .071 9.7 7.1 8.1 8.2 0.57 .064 8.9 7.9 8.8 9.0 0.40 .052 7.7 3 3	17.8 - 20.9 - 19.3 - MOISTURE TI 1/10 1/3 ATMOS.	sil sil sil sil sil sil sil sil sil sil
SO-30   Bea   -	20.9 - 19.3 - MOISTURE TI 1/10 1/3 ATMOS. ATMOS.	sil sil ENSIONS 4E 15 ATMOS 9.8
ORGANIC MATTER   SALT   O.6   O.7   O.7   O.7   O.7   O.8   O.7   O.8   O.7   O.7   O.8   O.7   O.8   O.7   O.8	20.9 - 19.3 - MOISTURE TI 1/10 1/3 ATMOS. ATMOS.	sil ENSIONS 14B 15 ATMOS 9.8 12.8
2-60   C   -   0.3   0.3   1.2   28.1   53.9   16.2   63.4   1	MOISTURE TI	ENSIONS 4E 15 ATMOS 9.8 12.8
SCID   SCID   SCID   SCID   SAID	1/10 1/3 ATMOS. ATMOS.	4B 15 ATMO 5 9.8 12.8
SCID   SCID   SCID   SCID   SAID	1/10 1/3 ATMOS. ATMOS.	4B 15 ATMO 5 9.8 12.8
RATED PASTE 1:5 1:10 ORGANIC NITRO— C/N (BUREAU EC <103 equiversity of the control of the contro	TMOS. ATMOS.	9.8 12.8
RATED PASTE         1:8         1:10         ORGANIC NITRO-CARBON GEN GEN GEN GEN GEN GEN GEN GEN GEN GE	TMOS. ATMOS.	9.8 12.8
6.8 7.5 7.8 1.21 .104 11.6 - 6.9 7.8 7.9 0.82 .078 10.5 - 7.0 7.9 8.0 0.69 .071 9.7 7.1 8.1 8.2 0.57 .064 8.9 7.9 8.8 9.0 0.40 .052 7.7 3	į	9.8
6.8		9.8
6.9     7.8     7.9     0.82     .078     10.5     -       7.0     7.9     8.0     0.69     .071     9.7     -       7.1     8.1     8.2     0.57     .064     8.9     -       7.9     8.8     9.0     0.40     .052     7.7     3		12.8
7.0 7.9 8.0 0.69 .071 9.7 7.1 8.1 8.2 0.57 .064 8.9 7.9 8.8 9.0 0.40 .052 7.7	Ī	1
7.0 7.9 8.0 0.69 .071 9.7 7.1 8.1 8.2 0.57 .064 8.9 7.9 8.8 9.0 0.40 .052 7.7		
7.1 8.1 8.2 0.57 .064 8.9 7.9 8.8 9.0 0.40 .052 7.7		12.6
7.9 8.8 9.0 0.40 .052 7.7	ł	12.3
		12.7
8.1   9.1   9.3   0.29		11.9
8.1 9.1 9.3 0.15		10.0
5ALE EXTRACTABLE CATIONS 2BLB BASE 5ASE	818	
CATION 6025 6025 672a 602a SAT.	ļ	MOISTU
APACITY Ca Me H No K No K Cations	са/ме	SATU RATIO
me/100g		
20.6 15.3 3.3 0.2 2.0 100 20.3	4.6	İ
	4.3	1
23.5 17.9 4.2 0.1 1.4 100 23.6	<b>-</b> ,	1
	3.8	1
	J•''	
		į
20.6 19.4 0.2 2.7 0.3 3.2	į	İ
+7•#   O•J J•&	Į	1
a. Particle size analyses by Beltsville Laboratory.	į	ļ
b. Organic matter in soud fractions.	ŧ	ļ
The state of the s	ļ	
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Soil type: Keith silt loam

S54Nebr-44-3-(1-7) Soil No.:

225 feet east and 150 feet north of southwest corner Sec. 3, TIN, Location:

R33W; 7 miles south and 1 mile west of Trenton, Hitchcock County,

Nebraska.

Southwest facing slope of 1 to 2 percent in an undulating land-Topography:

scape on a broad shallowly dissected losss-mantled interstream

divide.

Described by: B. H. Williams.

Mandan

Lab.

No. Horizon Depth

Gray (10YR 1/1.5, dry) to very dark grayish brown (10YR 3/2, moist) silt loam; weak fine granular; soft, dry; 0-6" 2402 Alp

friable, moist: abrupt smooth boundary.

Dark grayish brown (10YR 1/2, dry) to very mark grayish brown (10YR 3/2, moist) silt loam; moderate fine granular; 6-10" 2403 A<sub>12</sub>

slightly hard, dry; friable, moist; some lighter -colored

91

worm casts; smooth lower boundary.

10-13" Dark grayish brown (10YR h.5/2, dry) to very dark grayish 2404 B brown (10YR 3.5/2, moist) silty clay loam; fine subangular

blocky structure but some vertical cracks result in

coarse primary blocky breakage when this layer is carefully removed from place; slightly hard, dry; friable, moist;

much worm activity; clear smooth lower boundary.

2405 B2 13-20" Grayish brown (10YR 5/2.5, dry) to dark grayish brown

(10YR 4/2, moist) silty clay loam; weak coarse prismatic

gananatina to madamata madium and fine blader Amatumas

slightly hard, dry; friable, moist; much worm mixing of material from above horizons; clear smooth lower boundary.

2406 В<sub>са.</sub> Light grayish brown (10YR 6/2.5, dry) to grayish brown 20-30" (10YR 5/2.5, moist) heavy silt loam or silty clay loam; moderate fine and medium subangular blocky structure; slightly hard, dry; friable, moist; some dark worm casts from horizons above; white lime spots throughout and some disseminated lime in lower part; clear smooth lower boundary.

2407 Cca 30-42" Light gray (10YR 7.5/2, dry) to pale brown (10YR 6/3, moist) heavy silt loam; massive but crushes into subangular block-like firm lumps and loose soft material; friable when moist; slightly hard, dry; violent effervescence; both segregated and disseminated lime; clear smooth lower boundary.

21108 C 42-60" Light gray (10YR 7/2.5, dry) to pale brown (10YR 5.5/3, SOIL SURVEY LABORATORY Lincoln, Nebr. 4/7/58

OIL TYPE Keith LOCATION Kimball County, Nebraska silt loam

SOIL NOS. \$57Nebr-53-3-(1-9) LAB. NOS. 5810-5818

		lBla .	,	PARTI	CLE SIZ	E DISTRIB	WITCH (in	mm.) (p4	r cent) 3	<u> </u>		i
DEPTH INCHES	HORIZON I	VFRY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURAL CLASS
		2.1	1-0.5	0.5-0.25	0. 25-0. 10	0, 10-0,05	0.05-0.002	< 0.002	0.00.12	002-0002	(19mm	<u>)</u>
0-5	Alp	2.8a	8.0	5.1	7.1	20.4	38.2	18.4	49.3	13.0	Tr.	1
5-7	Ala	1.8	5.1	3.7	5.2	20.3	42.5	21.4	51.0	15.0	1	1
7-10	Bl	1.2	3.8	2.8	4.0	17.5	42.4	28.3	46.7	15.7	Tr.	c)
10-18	B21	0.4	2.0	1.6	2.9	17.3	45.6	30.2	48.0	16.8	Tr.	c <u>l</u>
18-23	B22	0.5	1.8	1.8	3.3	20.0	50.0	22.6	54.0	18.3	Tr.	sil/l
23-32	Clca	0.8	2.8	1.9	3.3	22.3	50.9	18.0	57.0	18.4	Tr.	sil/l
32-40	C2	0.6	2.7	2.1	3.4	24.4	49.8	17.0	59.9	16.5	Tr.	1
40-57	C3	1.6	7.6	5.2	7.3	29.3	36.6	12.4	59.6	10.8	Tr.	1
57-64	C4	5.4	16.4	11.9	15.6	26.5	16.3	7.9	47.4	4.3	2	<b>s</b> l
662+LE36F10E0999996	 рН		ORG	ANIC MA	 1 TER	8 <b>A</b> 2	ELECTRI-	6E3a	**************	MOIS	TURE TE	NNONS
8спь		8cla	6Ala			ESTT	CONDUC-	! -—	i a vac		;	482
Satu- rated			ORGANIC CARBON	NITRO- GEN	C'N	SALT (BUREAU CUP)	FC 1103 MILLIMHOS	equiv-	GYPSUM SUIL	1/10 ATMOS.	1/3 ATMOS.	15 ATMOS.
Paste			-	<b>4</b> .			FE CM	•	<u> </u>	* *	π,	5
6.4	6.8	7.3	0.92	.076	12.1	<0.20	0.0		<b></b>			8.6
6.3	6.7	7.2	0.87	.080	10.9	<0.20	0.6	<b>-</b>			l	, 10.0
6.5	7.0	7.4	0.54	.058	9.3	<0.20	0.6	-	1		•	13.3
6.7	7.3	7.8	0.45	.049	9.2	<0.20	0.6	-	•	:	<b>i</b>	15.0
7.3	7.9		0.42	.051	8.2	<0.20	0.8	-	İ	į	į	12.3
<u></u> 8	2 6	-0.7	0.72	1000	30.0	~~~	7 A	Ω		<u>:</u>	<u> </u>	11 2

Soil type: Keith silt loam

Iocation: Kimball County, Nebraska. 0.25 mile south and 30 feet west of NE corner Sec. 16, T16N, R54W. About 9 miles north and 1 mile west of Nix, Nebraska.

Topography: Less than 1 percent slope in the gently undulating loess-covered plains.

Cultivated: Fallow, 1957.
Described by: Ross D. Greenswalt and Rill McKinzie.

Soil No.: S57Nebr-53-3-(1-9)

Lincoln

Lab. No. Horizon

5810 0-5 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam; Αlp weak fine granular; very friable, moist; abrupt smooth lower boundary.

5-7 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loem; weak coarse subangular blocky structure; very friable, moist; abrupt smooth lower boundary. This 5811 SLA horizon appears to be a plow pan with very weak platy structure.

7-10 inches. Grayish brown (10YR 5/2 dry) to dark brown (10YR 3/3 moist) heavy silt loam; compound weak coarse subangular blocky and weak medium subangular blocky structure; friable, moist; clear 5812 Bl. smooth lower boundary; broken clay skins on vertical and horizontal faces.

10-18 inches. Light brownish gray (10YR 6/2 dry) to dark brown (10YR 3/3 moist) silty clay loam; compound weak coarse prismatic and moderate fine and medium subangular blocky structure; firm, 5813 B21 moist; clear smooth lower boundary; continuous clay skins on both vertical and horizontal faces.

18-23 inches. Light grayish brown (10YR 6.5/2 dry) to dark brown (10YR 4.5/3 moist) light silty clay losm; compound weak coarse prismatic and moderate medium subangular blocky structure; firm, 5814 B22 moist; abrupt smooth lower boundary; broken clay skins on vertical and horizontal faces.

23-32 inches. Light gray (10YR 7/2 dry) to pale brown (10YR 6/3 moist) silt loam; compound weak coarse prismatic and weak medium subangular blocky structure; very friable, moist; violent effervescence; disseminated lime present in root channels and on structural facing; gradual smooth lower boundary; several 1-2 inch Krotovinas present in this horizon. 5815 Clca

32-40 inches. Light gray (10YR 7/2 dry) to brown (10YR 5/3 moist) silt loam; weak coarse prismatic 5816 ന structure; very friable, moist; violent effervescence; clear smooth lower boundary.

5817 C3 40-57 inches. Light gray (10YR 7/2 dry) to pale brown (10YR 6/3 moist) very fine sandy loam; weak coarse prismatic to massive structure; very friable, moist; violent effervescence; abrupt smooth lower boundary; pockets of fine gravel present in this horizon.

5818 Ch 57-64 inches. Very pale brown (10YR 7/3 dry) to brown (10YR 5/3 moist) loamy sand; massive structure; loose; strong effervescence.

Note: Horizons Alp, R21 and C3 were sampled for the Bureau of Public Roads.

	SOIL	SURV	EY LA	BORA	TORY	L	incoln,	Nebr.	4/7/58	3	-0000	
	SOIL	TYPE.	Keith silt lo	oam	<b>L</b>	OCAT	ION	Kimball	County,	Nebrasks	<u> </u>	
	SOIL	NOS.	.S <u>5</u> 7	7Nebr-53	3-4- <b>(</b> 1-9	<u>)</u>	LAB.	NOS	5819-58	327		
· .		HORIZON C	Bla VERY DARSE COAL SAND SAN	PAR RSE MEDIU SAND	M FINE	VERY FINE SAND	SILT	7 RNR.) (per	seny 3A1	2A2 >2	TEXTURAL CLASS	
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Soil type: Keith silt loam Location: Kimbell County, Nebraska. 0.4 mile north and 100 feet east (fence) of SW corner Sec. 18, TLON, R53W.

About 8.5 miles north and 2 west of Dix, Nebraska.

Topography: Less than 1 percent slope in the gently undulating loess-covered plains.

Cultivated: Fallow, 1957.

Described by: Ross D. Greenawalt and Bill McKinzie.

Soil No.: S57Nebr-53-4-(1-9).

Lincoln

Horizon

Lab. No. 0-6 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam; 5819 Alp 6-8 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam; weak coarse subangular blocky structure; very friable, moist; abrupt smooth lower boundary. 5820 A12 8-11 inches. Grayish brown (10YR 5/2 dry) to dark brown (10YR 3/3 moist) light silty clay loam; 5821 B1 compound weak coarse subangular and weak medium subangular blocky structure; friable, moist; clear smooth lower boundary; broken clay skins on vertical and horizontal faces. 11-17 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silty clay 5822 B21 loam; compound weak coarse prismatic and moderate fine and medium subangular blocky structure; firm, moist; clear smooth lower boundary; continuous clay skins on vertical and horizontal faces. 5823 B22 17-23 inches. Hight brownish gray (10YR 6/2 dry) to dark grayish brown (10YR 4/2.5 moist) silt loam; compound weak coarse prismatic and weak medium subangular blocky structure; friable, moist; abrupt smooth lower boundary; broken clay skins on vertical faces; numerous worm casts present. 23-33 inches. Light gray (10YR 7/2 dry) to brown (10YR 5/3 moist) silt loam; compound weak coarse prismatic and weak medium subangular blocky structure; very friable, moist; violent effervescence; gradual smooth lower boundary; few worm casts present; disseminated lime present in root channels 5824 and on structural faces. 33-41 inches. Light grav (10YR 7/2 dry) to brown (10YR 5.5/3 moist) stilt loam: weak coarse pris-

SOIL TYPE Kenesav LOCATION Hall County, Nebraska silt loam

SOIL NOS. S54Nebr-40-1-(1-7) LAB. NOS. 2380-2386

i								er cont)	341		i
<b>O</b> RIZON	VERY COARSE SAND	CÓARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTUR!
	2-1	1-0.5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	002-0002		<u> </u>
เริก	_	าด	1.4	2.5	23.0	52.4	18.8	62.5	14.5	_	sil
- ,	0.3		•							<b>-</b> -	cl
- +		-			15.8	52.6				_	sicl
		0.lh		0.3	17.3	58.1	24.2	54.2	21.4	-	sil
ń		0.1	_	0.5	22.1	59.1	18.2			-	sil
2ca	-	-	0.1	0.5	23.6	60.4		2 :	7	-	sil
23	-	0.1	0.1	0.5	18.7	64.7	15.9	59.9	23.8	-	sil
	***************************************				**\$4***** <del>****</del> *********		677	M-11-00-100			
	801a			ITER	FCTM	CAL CAL	ORJA		MOIS	URE TE	HSIONS
1		-			SALT	TIVITY			1/10	1/3	15
1:5	1:10	CARBON	GEN	C/N	(BONE)	PER CM	alent	SOIL	ATMOS.	ATMOS.	ATMOS
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							-	į ,	Ī		14.2
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8.7	8.9	0.10					-	İ			10.0
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Co	Mg	н	No	K		Ne	K.	Cations	Ca/Mg		RATIO
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10.0	3.5		0.1	1.6	87			15.2	2.8		}
14.6	5.2		0.1	1.2				3			1
16.7	6.0					,			! '		ļ
16.4											ļ
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Ì	2.2		0.2	<b>∠.</b> ⊥							ŧ
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	11p 321 322 33 11c2ca 33 12ca 36.7 6.9 7.2 7.9 8.8 8.7 10.0 14.6 16.7 16.4 16.6	SAND 2-1 1-1 1-1 1-1 1-2 1-32 1 0.3 3-2233 1-1 1-2 2-3 3 1-3 1-1 1-1 1-1 1-1 1-1 1-1 1-1 1-1 1	SAND SAND 2:1 1.0.5  1:0.5  1:0.5  1:0.5  1:0.5  1:0.3  1:3  3:22	SAND SAND SAND SAND 2.1 1.0.5 0.54.25    1.0.5	SAND   SAND   SAND   SAND   SAND   1.0.5   0.5-0.25   0.25-0.10     Sall   O.3   1.3   1.0   1.7     Sall   O.3   1.3   1.0   1.7     Sall   O.3   O.1b   O.3     O.1   O.5   O.5     O.2   O.1   O.5     O.3   O.1   O.5     O.3   O.1   O.5     O.3   O.1   O.5     O.3   O.1   O.5     O.3   O.1   O.5     O.3   O.1   O.5     O.1   O.5     O.1   O.5     O.2   O.3   O.3     O.3   O.1   O.5     O.3   O.5   O.1   O.5     O.4   O.5   O.5     O.5   O.5   O.5     O.5   O.5   O.5     O.5   O.5   O.5     O.5   O.5     O.5   O.5   O.5     O.5	SAND SAND SAND SAND SAND  21 1.0.5 0.54.25 0.25.4.10 0.104.05  Alp - 1.8 1.4 2.5 23.0  1.3 1.0 1.7 18.1  322 0.3 0.5 15.8  33 - 0.1b - 0.3 17.3  21 - 0.1 - 0.5 22.1  22ca - 0.1 0.5 23.6  33 - 0.1 0.1 0.5 18.7  BCLA SCLA GALA GALA GEN  BCLA SCLA GALA GEN  BCLA SCLA GALA GEN  BCLA GALA GEN  BCLA GALA GEN  BCLA GALA GEN  BCLA GALA GEN  BCLA GALA GEN  BCLA GALA GEN  BCLA GALA GEN  BCLA GALA GEN  BCLA GALA GEN  BC	SAND   SAND	SAND   SAND	SAND   SAND	SAND   SAND	SAND   SAND

97

Soil type: Kenesaw silt loam
Soil No.: S54Nebr-40-1-(1-7)

Location: 400 feet north and 80 feet east of west quarter corner Sec. 28, TON,

RIOW; 4 miles west and 3-1/2 miles south of Doniphan, Hall County.

Nebraska.

Topography: South facing 2 to 3 percent slope in gently undulating to undulating

loess-mantled plain with indefinite or poorly developed surface

drainago.

Described by: B. H. Williams.

### Mandan

Lab.

No. Horizon Depth

2380 Alp 0-7" Grayish brown (10YR 5/2, dry) to very dark grayish brown (10YR 3.5/2, moist) silt loam; weak fine granular structure soft, dry; friable, moist; abrupt lower boundary.

2381 B<sub>21</sub> 7-12" Grayish brown or brown (10YR 5/2.5, dry) to dark grayish brown (10YR 4/2, moist) silty clay loam; moderate coarse prismatic structure separating to weak fine blocky or fine subangular blocky peds; hard, dry; firm, moist.

2382 B<sub>22</sub> 12-18" Light grayish brown (10YR 6/2, dry) to dark grayish brown (10YR 4/2.5, moist) silty clay loam; few faint fine yellowish brown and gray mottles in the lower part; compound moderate coarse prismatic and coarse blocky and weak fine blocky structure; hard, dry; friable, moist.

2383 B3 18-32" Pale brown (10YR 6/3, dry) to light olive brown (2.5Y 5/3 moist) light silty clay loam; compound weak coarse prismatic and weak coarse blocky; slightly hard, dry; friable, moist; gradual lower boundary.

2384 O<sub>1</sub> 32-38" Light gray (10YR 7/2, dry) to light brownish gray (10YR 6/2, moist) silt loam; massive or weak coarse blocky structure; slightly hard, dry; friable, moist; noncalcareous; clear wavy lower boundary.

2385 C2ca 38-53" Light gray (10YR 7/2, dry) to pale brown (10YR 6/2.5, moist

cal careous; some segregated but mainly disseminated lime.

2386 C<sub>3</sub> 53-60" Pale yellow (2.5Y 8/3, dry) light yellowish brown (2.5Y 6/3, moist) silt loam; massive; soft, dry; very friable, moist; calcareous.

SOIL SURVEY LABORATORY Mandan, N. Dak. 4 9/22/55

SOIL TYPE Kenesaw LOCATION Hamilton County, Nebraska

SOIL NOS. S54Nebr-41-1-(1-6) LAB. NOS. 2374-2379

		,									
HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			> 2 2022.	TEXTUR CLASS
	2-1	1.0.5	0.5-0.25	0.75-0.10	0.10-0.05	0.05-0.002	< 0.002	6. 2-0.C2	407-4002		
Alp B2 B3 Bca Cca	0.1 <b>b</b>	0.1b 0.1 - 0.1 0.1	0.2 0.1 0.1 0.2 0.2 0.1	0.9 0.6 0.3 1.0 0.5 0.3	16.6 13.3 13.9 19.5 14.3 13.6	57.2 57.6 61.0 57.4 64.3 66.6	28.3 24.7 21.8	51.4 53.9 56.4	15.8 19.9 21.2 21.0 23.8 23.3		sil sicl sil sil sil sil
pΗ					```	ELECTRI-	6Kla	Mar e ere markel	MOIST	URE TE	
8Cla 1:5		ORGANIC CARBON	NITRO- GEN	Ç/N	ESTS SALT (BUREAU CUP)	EC - 103	equiv- alent	GYPSUM me_/100g. SOIL	ATMOS.	1/3 ATMOS.	4 15 ATMO
6.9 7.5 7.7 8.5 8.7 8.6	7.0 7.6 7.3 8.7 8.9 8.8	0.96 0.35 0.18 0.15 0.12 0.08	.093 .046 .028	10.3 7.6	!		- - 1 2				10.6 13.0 12.0 11.7 11.3 11.0
	EXTRAC	TABLE	CATIONS	581a	BASE	***********	***********	5A3a	803	*******	
	602b	н	6P2a No		SAT.	No	æ	Sum Cations			MOISTU SATU RATIO
16.5 16.4	4.7 6.1 5.5		0.1 0.1 0.2 0.2 0.2 0.2	1.6 1.4 1.5 1.8 2.1 2.2	94 100 94 100			19.1 24.1 23.6	2.7 3.0		
rticle gamic	size Matter	analys im sa	es by mal fra	Peltsv ctiems	ille Ial	oratory	•				
	Alp B2 B3 Bca Cca C C 8Cla 1:5 6.9 7.5 7.7 8.5 8.6 20.8	## BCL BCL BCL BCL BCL BCL BCL BCL BCL BCL	## ORGANIC CARBON   1.0.5   1.	2-1   1.0.5   0.50.25	SAND   SAND   SAND   SAND	SAND   SAND   SAND   SAND   SAND   SAND	SAND   SAND	SAND   SAND	SAND   SAND	SAND   SAND	SAND   SAND

99

Soil type: Kenesaw silt loam Soil No.: S54Nebr-41-1-(1-6)

Location: 400 feet west and 130 feet south of northeast corner Sec. 7, Thin,

RTW; 3 miles east and 3 miles north of Phillips, Hamilton County,

Nebraska.

Topography: About 2 percent southeast facing slope in undulating losss-mantled

plain.

Land use: Cultivated, wheat 1954. Described by: B. H. Williams.

### Mandan

Lab.

No. Horizon Depth

2374 Alm 0-7"

Grayish brown (10YR 5/2, dry) to very dark grayish brown (10YR 3/2, moist) silt loam; moderate fine granular structure; slightly hard, dry; friable, moist; under tillage breaks out in medium and coarse blocky clods after fields are dried out; abrupt smooth lower boundary.

2375 B<sub>2</sub> 7-15"

Pale brown (10YR 6/3, dry) to grayish brown (10YR 4/2.5, moist) light silty clay loam; a few fine dark brown spots of accumulated iron segregation; compound moderate coarse prismatic and medium blocky structure; with vertical cleavage somewhat better defined; hard, dry; firm, moist; fairly numerous pores and root channels; gradual smooth lower boundary.

2776 B<sub>3</sub> 15-24"

15-2h" Very pale brown (10YR 7/3, dry) to pale brown (10YR 6/3, moist) heavy silt loam; common prominent yellowish brown and dark brown mottles; compound coarse prismatic and coarse blocky structure; hard, dry; friable, moist; numerous root channels, pores and a few worm burrows; clear wavy lower boundary. In places the noncalcareous material tongues 6 or more inches into the Bca horizon along the major vertical cracking planes.

2377 B. 24-33" Very pale brown (10YR 7.5/3. drv) to light vellowish

inent fine yellow and brown mottles; compound weak coarse prismatic and very weak coarse blocky structure; slightly hard, dry; friable, moist; calcareous and strong effervescence mainly in spots and seams of lime carbonate accumulation; fairly numerous pores and root channels; clear smooth lower boundary.

2378 Cca 33-48" Very pale brown (10YR 8/3, dry) to pale brown (10YR 6/3, moist) silt loam: few faint fine pale vellow and light

SOIL SURVEY LABORATORY Mandan, N. Dak.

SOIL TYPE \*Keota LOCATION Scotts Bluff County, Nebraska

SOIL NOS. S53Nebr-79-3-(1-6) LAB. NOS. 1953-1958

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DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY				TEXTURAL CLASS
		2-1	1-0,5	0,5-0.25	0. 25-0. 10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	002-0003		
0-8 8-16 16-24 24-34 34-43 43-60+	Alp Al2 Cl C2 C3 C4	- 9 0.9 0.9 0.4	0.5 1.9 3.3 2.4 2.9 2.1	0.8 2.3 3.2 3.8 2.8	4.9 9.0 10.4 8.1 11.6 10.7	28.3 25.3 22.6 22.6 21.6 29.7	45.3 45.9 46.2 52.8 49.0 44.5	20.2 14.8 13.3 11.0 10.5 9.8	60.2 56.2 54.8 58.6 55.3 61.8	16.9 21.1 21.0 22.4 22.7 19.5	- - -	1 1 sil 1
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	pΗ	~ <b>~~</b> ****		MIC MA	TTER		ELECTRI-	6Ela	6Fla	MOIST	URE TE	NSIONS
SCID SAYU- RATED PASTE	8C.1a.	801a 1:10	ORGANIC CARBON	GEN	C/N	ESTS SALT (BUREAU CUP)	CAL CONDUC- TIVITY EC×103 MILLIMHUS PER CM BALA	alent	GYPSUM me_/100g, SOIL	ATMOS.	1/3 ATMOS,	15 ATMOS.
				*						%	5	
7.6	8.0 8.2	8.2 8.5	1.24 0.56	:		<u>a</u>	0.8	12				12.5 15.5
7.7 7.7	8.3	8.6	0.31				1.2	14	•			15.2
7.7	8.6	8.7	0.19	f .			0.9	9	- 1			14.0
7.8	8.5	8.8	0.11	ŧ .	1		0.7	8	<b>!</b> -			14.2
7.8	8.5	8.8	0.12				0.7	7	-			13.4
	EDI -		CATTONS		5B16		BAL SATU	i Amerikani Dation	EVTDAC	7 CO 11		8 <b>A</b>
5Ala	5BLa EXTRAC	TABLE	ATT ON		VGEABIE					3023	30.0	MOISTURE
CATION EXCHANGE CAPACITY NH <sub>L</sub> OAC		602b <b>M</b> g		6P2a Na	602a. K	EXCH.	6Pla No	601a K				SATU- RATION
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25.9		3.9		0.5	2.1	2	1.7	0.8	1			51.3 53.9
26.9 27.1		3.6 4.3	İ	0.3	2.0	2	3.5	0.6	1			51.7
26.5		5.0	į	0.4	3.0	2	3.2	0.8	İ	j		49.0
25.5		6.0	į	0.4	3.6	2	2.9	1.0	1	Ì		48.0
24.6	1	5.8	•	0.3	3.8	1	2.3	1.0	Ī			46.1
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Soil type: \*Keota silt loam

\$53Nebr-79-3-(1-6) Soil No.:

Date Sampled: September 30, 1953
Location: Four hundred feet west and 1375 feet south of NE corner Sec. 16, T22N R56W, Scotts Bluff County, Nebraska.

Topographic position: Foot slope.

Relief: Slight, smooth 4-5 percent slope, northeast facing. Drainage: Well drained.

1958

Ground water: Many feet to water level.

Root distribution: Normal throughout. No evidence of limiting horizons.

Land use: Irrigated from ditch--beans 1953. Harvested prior to sampling. Farmer reports 50 bushel yield. 1953

#### Described by: John Elder. first crop after alfalfa. Mandan Lab. No. Horizon 0-8 inches. Grayish brown (10YR 5.5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt losm. 1953 Alp Weak medium subangular blocky to very fine, very weak granular, slightly hard dry, frishe moist, slight effervescence, grades abruptly and smoothly. Al2 8-16 inches. Very pale brown (10YR 8/3 dry) to pale brown (10YR 6/3 moist) silt loam. Weak 1954 coarse subangular blocky to very weak fine granular, slightly hard dry, friable moist, violent effervescence, no coatings on aggregates, gradual, smooth boundary. Ç1 16-24 inches. Very pale brown (10YR 8/3 dry) to pale brown (10YR 6/3 moist) loam. Very weak 1955 coarse subangular blocky to very weak fine granular, soft dry, very friable moist, contains a few slightly hard pieces (1/8-1/4 inch) of Brule fragments, violent effervescence; diffuse, smooth boundary. 24-34 inches. Pinkish white (7.5YR 8/2 dry) to pink (7.5YR 7/4 moist) silt loam. Massive to 1956 C2 single grain with many medium to small soft lumps and powdery material after crushing, soft dry, very friable moist, violent effervescence; diffuse, smooth boundary. 34-43 inches. Pinkish white (7.5YR 8/2 dry) to pink (7.5YR 7/4 moist) silt loam. Massive to single grain with many medium and small soft lumps and powdery material after crushing, soft dry, 1957 C3 very friable moist, violent effervescence; diffuse, smooth boundary.

43-60 inches. Pinkish white (7.5YR 8/2 dry) to pink (7.5YR 7/4 moist) very fine sandy loam. Massive breaking to single grain, soft dry, very friable moist, violent effervescence, continuing below 60 inches to an undetermined depth.

SOIL SURVEY LABORATORY Mandan, N. Dak.

SOIL TYPE \*Keota LOCATION Scotts Bluff County, Nebraska

SOIL NOS. S53Nebr-79-5-(1-8) LAB. NOS. 1965-1972

*****************	******************	BBS PARTICLE SIZE DISTRIBUTION (in nam.) (per cent) 3A1									<del> </del>	
DEPTH INCHES	HORIZON	SAND	COARSE SAND	MEDIUM SANO	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURA CLASS
		21	1-0.5	i	0.25-0.10		0.05-0.002	< 0.002		002-0002		
<b>9-</b> 6	Alpl	-	0.6	1.5	5.8	34.3	37.4	20.4		15.9	-	1
6-9	Alp2	-	0.5	1.1	6.0	27.1	51.5	13.8	56.0	26.7	-	sil
9-15	Al2	-	0.5	1.4 2.1	5.6 6.8	32.0		20.5	57.9		-	1
15-29 29-38	C2	_	1.3	1.4	4.8	25.2 22.3		13.7 12.6	55.9 56.9		-	sil sil
38-44	C3	0.7	2.0	1.9	5.7	17.6		13.3	51.0		_	sil
44-51	C4	0.2	1.0	1.2	4.7	22.0		11.2	58.1		_	sil
51-60	C5	0.2	0.6	0.9	4.3	22.7		10.9	58.8		-	sil
	‡											
httrianbar 11650160 1911	pH		ORGANIC MATTER		"'8 <b>A</b> 2 ''	ELECTRI- CAL CONDUC-	6Ela	"6Fla	MOISTURE TE		NSIONS	
SAYU-	8cla	8Cla	6Ala			EST% SALT	CONDUC-	CoCOs	GYPSUM			4-B
PASTE	1:5	1:10	ORGANIC CARBON	NITRO- GEN	C/N	(BUREAU CUP)	EC×103 MILLIMHOS	eguly-	me./100g. SOIL.	1/10 ATMOS.	1/3 ATMOS,	15 ATMOS.
		******	*	. %			PER CM	*		*	*	
7.7	8.2	8.5	1.19			<u>a</u> .	1.0	i -				12.6
7.8	8.2	8.4	0.99			_	1.3	-				12.8
7.6	8.3	8.5	0.63				2.0	8				15.2
7.7	8.4	8.6	0.34		] ]		2.4	π	-			13.7
	8.8	9.0	0.13		i 1		2.2	9	-			13.5
7.8			0.70		•							
7.8 7.9 8.0	9.2 9.4	9.3 9.5	0.10				1.9 1.6	<b>1</b> 5 9	_			14.4 13.0

Soil type: \*Keota silt loam Soil No.: S53Nebr-79-5-(1-8) Date sampled: October 1, 1953

Location: 0.4 miles south and 0.7 miles east of NW corner Sec. 22, T22N R57W, Scotts Bluff County, Mebraska.

Topographic position: Foot slope. Described by: John Elder.

Relief: Slight, smooth 3 percent slope, southwest facing.

Drainage: Well drained. Sample site is about 100 feet below irrigation ditch (not a large supply canal).

Ground water: Many feet to water level.

Root distribution: Normal throughout. No evidence of limiting horizon.

Land use: Irrigated from ditch--beans 1953. Crop harvested but no yield available.

#### Mandan Tab Ma

#### Lab. No. Horizon

1965 Alp1 0-6 inches. Grayish brown (10YR 5/2 dry) to dark grayish brown (10YR 4/2 moist) silt loam. Weak medium subangular blocky to very weak very fine granular, hard dry, friable moist, few fine white lime spots, matrix noncalcareous; abrupt, amooth boundary.

1966 Alp2 6-9 inches. Variegated color. Pale brown and grayish brown (10YR 6/3-5/2 dry) to grayish brown and dark grayish brown (10YR 5/2 and 4/2 moist) silty clay loam. Moderate coarse subangular blocky to moderate fine granular, hard dry, friable moist, darker material noncalcareous, lighter material violent effervescence, abrupt smooth boundary.

1967 Al? 9-15 inches. Very pale brown (10YR 8/3 dry) to pale brown (10YR 6/3 moist) silt loam. Weak coarse subangular blocky to weak fine granular, slightly hard dry, friable moist, a few worm openings and worm casts, violent effervescence, gradual, smooth boundary.

1968 C1 15-29 inches. Very pale brown (10YR 8/3 dry) to pale brown (10YR 6/3 moist) silt loam. Weak coarse subangular blocky to very weak fine and very fine granular, soft dry, very friable moist, violent effervescence, many fine white lime spots, grades gradually and smoothly.

1969 C2 29-38 inches. Very pale brown (10YR 8/3 dry) to pale brown (10YR 6/3 moist) silt loam. Very weak coarse subangular blocky to very weak fine and very fine granular, soft dry, very friable moist, violent effervescence, few fine white lime spots in pores and openings, a few slightly hard Brule fragments are present. Abrupt, irregular boundary.

1970 C3 38-44 inches. Very pale brown (10YR 8/3 dry) to pale brown (10YR 6/3 moist) silt loam, very weak medium and coarse subangular blocky to moderate fine granular, soft dry, very friable moist, few fine white lime specks in pores and openings, many slightly hard Brule fragments and an occasional quartz pebble; this is probably an old surface; clear, wavy boundary.

1971 C4 44-51 inches. Very pale brown (10YR 8/3 dry) to pale brown (10YR 6/3 moist) silt loam. Very weak coarse subangular blocky to moderate fine granular, soft dry, very friable moist, violent effervescence, thin lime coating on sides of some pore and root openings, a few hard Brule fragments. Diffuse, wavy boundary.

1972 C5 51-60 inches. Very pale brown (10YR 8/3 dry) to pale brown (10YR 6/3 moist) silt loam. Massive or very weak coarse subangular blocky with tendency to break to weak fine granules as well as single grain, soft dry, very friable moist, violent effervescence, continues downward to undetermined depth.

Note: Pink Brule chips (7.5YR 7/4 moist) are present in the lower horizons (29 inches plus) giving the vialed samples a faint pinkish cast. In profile 853Nebr-79-3, Keota silt loam, the corresponding horizons have colors which best match the 7.5YR chart.

SOIL	SURVEY	LABORATORY	Mandan, N	T1	Dak
		_			

SOIL TYPE Lamoure LOCATION Dodge County, Nebraska silty clay loam

SOIL NOS. <u>\$53Nebr-27-3-(1-8)</u> LAB. NOS. <u>1518-1525</u>

	} 	1Bla	. b4444414490631061	Mundeller DADTI	**************************************	######################################	UTION (in				. 177 1977 10 F3 20001 (A	} } Territalisterin
	į	11116.		[ FARI	CLE 312	E Maikie		unur) (b.	1. <b>Co</b> 1111	<u> </u>	2A2	
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			> 2	TEXTURAL CLASS
		2-1	1-0.5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	002-0002		
0-6	Alp	-	0.5	1.3	5.1	21.1	51.0	21.0	61.2	14.5	_	sil
6-18	A1Ž	0.4	1.9		13.3	14.3	42.7	23.4	50.2		- '	ì
18-25	AC	1.4	1.9		14.4	10.6	37.4	30.7	42.4	14.8	_	cl
25-33	CJ	1.1	1.6		14.3	11.1	37.5	31.8	44.0	13.9	Tr.	cl
33-40	CS.	1.4	1.6		15.2	13.4	38.4	27.4	50.4			cl
40-44	C3	1.8	1.5		14.5	14.0	42.4	23.4	54.5		2	1
44-48	Ccag	2.0	1.4	2.0	<u>1</u> 3.1	11.7	47.6	22.2	53.2	14.3	Tr.	1
48-57	Cg	-	0.7	2.8	31.9	9.8	43.5	11.3	63.4	48.1	-	1
					1							
<b></b>	hammuni Hq		ORG	NIC MA	TTER	"'8A2"	ELECTRI-	6Ela	6Fla	MOI57	TURE TE	imanumina ENSIONS
8C1b	8¢1a	8c1a	6Ala		]	EST% SALT	CAL CONDUC-					4B2
RATED			ORGANIC	NITRO-		BUREAU	EC×103	CoCO <sub>3</sub>	GYPSUM me./100g.	1/10	1/3	15
PASTE	1:5	1:10	CARBON	GEN	C/N	CUP)	MILLIMHOS	equiv-	SOIL	ATMOS.	ATMOS.	ATMOS.
				. %			8A18M	*		*	*	
6.6	7.0		1.27		1	<u>a</u>	4.6	-				10.7
7.9	8.3	8.4	0.59				1.8	1				11.6
8.2	6.5	8.6	0.38				1.4	3				14.9
8.2	8.6	8.6	0.29				1.2	2	-		1	15.8
8.2	8.5	8.5	0.22				1.1	1	-			14.1
8.1	8.3	8.5	0.17				1.1	2	-		· ·	15.3
8.3	8.6	8.6	0.16				1.0	17	-			9.8 6.4
7-9	8.0	8.2	0.05				1.0	-	-			0.4
notes de la como	***************************************	*********	***********	**********	5B1b	5 <b>D</b> 2	BAISATU			in maintenant and an an an an an an an an an an an an an		
5Ala	5BLa EXTRAC	TABLE	CATTONS		VGEABLE		OALSATU	RATION	EXTRAC	1 SOL,		8 <b>A</b>
CATION EXCHANGE CAPACITY				6P2a	602a		6Pla	6Qla				MOISTURE AT SATU-
	Ca	Mg		Na.	ĸ	EXCH.	No	K			Ca/Mg	SATU- RATION
NH <sub>1</sub> Ac	·	milliequiv	alents per	100g. sof	, I	Na %	•	_ millioqui	valents pe	r liter —)		%
21.2	13.1	7.2		0.4	0.8	2	4.1	0.5				45.4
20.5	14.5	9.7		1.3	0.3	6	10.6	0.1				48.5
24.4		, ,		2.2	0.5	9	10.2	-				62.9
23.6				2.2	0.5	9	9.3	0.1				67.5
20.6				1.9	0.5	9	7.6	0.1				64.3
17.9				1.6	0.6	9 8	7.0	0.1				55.4
12.8				1.1	0.4		5.9	0.1				45.8
10.4	6.3	3.7		0.9	0.4	9	5.6	0.1				34.9
a. Le	es tha	n 0.20	<b>5.</b>									
												articles de la constante de la

Soil type: Ismoure silty clay loam

Soil No.: S53Mebr-27-3-(1-8)

Soil No.: S53Mebr-27-3-(1-8)

Location: One hundred feet east of center of Sec. 8, TL7N, R7E, Dodge County, Nebraska.

Topographic position: Platte River bottom land, slack-water sediment area some distance from river on flat to

slightly depressed position, with possible flooding from upland drains.
Relief: Flat, no surface drainage except that provided by road ditches.
Drainage: Surface drainage lacking, profile poorly drained.
Ground water: Water table about 57 inches at time of sampling.

Land use: Cultivated.

Described by: B. H. Williams and Donald C. Yost.

Mandan

1524

Ccag

clear smooth lower boundary.

Iab. No. Horizon
1618 Alm 0-6 inches Towle over (10YR L/1 Ave) to very dark over (10YR 3/1 moist) silty clay loss; coarse

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	:	<u> </u>
	:	friable, moist; noncalcareous; abrupt smooth lower boundary.
1519	: Ale	<u> </u>
1519	Al2	friable, moist; noncalcareous; abrupt smooth lower boundary.  6-18 inches. Dark gray (10YR 4/1 dry) to very dark gray (10YR 3/1 moist) silty clay loam; weak coarse subangular blocky separating to strong medium and fine granular; slightly hard, dry; slightly plastic, wet; matrix noncalcareous but with many fine, soft, white, lime concretions in
		friable, moist; noncalcareous; abrupt smooth lower boundary.  6-18 inches. Dark gray (10YR 4/1 dry) to very dark gray (10YR 3/1 moist) silty clay loam; weak coarse subangular blocky separating to strong medium and fine granular; slightly hard, dry; slightly plastic, wet; matrix noncalcareous but with many fine, soft, white, lime concretions in larger pores and openings; clear smooth lower boundary.  18-25 inches. Dark gray (10YR 4.5/1 dry) to very dark gray (10YR 3/1 moist) silty clay; few faint brown mottles and stains; moderate coarse prismatic separating easily to strong fine blocky; hard, dry; plastic, wet; weak effervescence, lime is in faint coating on pore opening with a few fine,
1520	AC	friable, moist; noncalcareous; abrupt smooth lower boundary.  6-18 inches. Dark gray (10YR 4/1 dry) to very dark gray (10YR 3/1 moist) silty clay losm; weak coarse subangular blocky separating to strong medium and fine granular; slightly hard, dry; slightly plastic, wet; matrix noncalcareous but with many fine, soft, white, lime concretions in larger pores and openings; clear smooth lower boundary.  18-25 inches. Dark gray (10YR 4.5/1 dry) to very dark gray (10YR 3/1 moist) silty clay; few faint brown mottles and stains; moderate coarse prismatic separating easily to strong fine blocky; hard, dry; plastic, wet; weak effervescence, lime is in faint coating on pore opening with a few fine, white concretions; clear smooth lower boundary.  25-33 inches. Gray (10YR 5/1 dry) to dark gray (10YR 4/1 moist) silty clay; few distinct fine brown mottles; moderate coarse prismatic breaking to strong medium blocky; firm, moist; hard, dry; plastic, wet; very weak effervescence, a few hard lime concretions up to 1/2 inch in diameter;

44-48 inches. White (10YR 8/1 dry) to light brownish gray (10YR 6/2 moist) silty clay losm; many

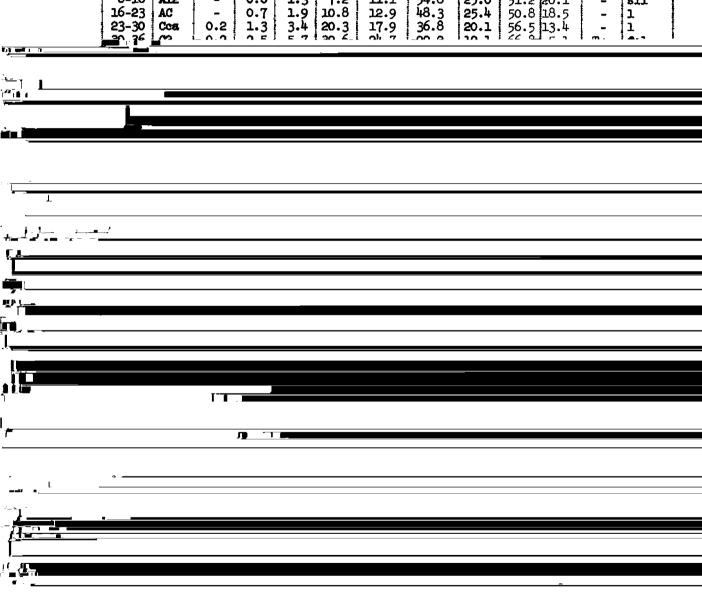
distinct brown mottles and soft brown concretions; weak fine granular; violent effervescence;

SOIL SURVEY LABORATORY Mandan, N. Dak.

SOIL TYPE Leshara LOCATION Dodge County, Nebraska silt loam

SOIL NOS. 853Nebr-27-4-(1-8) LAB. NOS. 1526-1533

	<u> </u>	lBla	·**********	PARTI	CLE SIZ	E DISTRIE	UTION (in	mm.) (pe	er cent) 3.	Al		
DEPTH INCHES	HORIZON	VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND	FINE SAND	VERY FINE SAND 0.10-0.05	\$ILT 0.05-0.002	CLAY	0. 2-0.02		> 2	TEXTURAL CLASS
******					*****		0.05-0.002	₹ 0.002	!		CTAME	i
0-6	Alp	0.1	0.3	0.8	8.2	14.4	59.0	17.2	64.2	15.6	-	sil
6-16	AL2	-	0.6	1.3	7.2	11.1	54.8	25.0	51.2	20.1	_	sil i
16-23	AC	_	0.7	1.9	10.8	12.9	48.3	25.4	50.8		_	1
23-30	Coa	0.2	1.3	3.4	20.3	17.9	36.8	20.1	56.5			i l
_2∩ 36	_~	_ ^.2	2 = 1	- 7	30 Z	Ai 7	-00 0	דיתנ	22 2	7	m.	<u> </u>



Soil type: Leshare silt loam Soil No.: S53Nebr-27-4-(1-8)

Location: 0.2 mile south of NW corner Sec. 11, T17N, R6E, Dodge County, Nebraska.

Topographic position: Flat to slightly depressed Platte River bottom land position. Above flood level of the River.

Relief: Slight.

Drainage: Imperfectly or poorly drained. Surface drainage is lacking except as provided by road ditches and a deep drainage ditch about 1 mile northeast of the sample site. The soil shows decided dull color throughout, typical of soils developed under poor drainage. The soil, however, seems moderately permeable above the

fine textured material at 70 inches.

Ground water: Saturated below 54 inches but this water may be held above the fine textured material at 70 inches

Ground water: Saturated below 54 inches but this water may be held above the rine textured material at 70 inches and may not indicate the static water level.

of the sample site crops are uneven in growth and show evidence of saline or alkali conditions. Described by: B. H. Williams and Donald C. Yost. Mandan Iab.No. Borizon 0-6 inches. Dark gray (10YR 4.5/1 dry) to very dark gray (10YR 3/1 moist) heavy silt loam; moderate 1526 Alp fine and very fine granular; slightly hard, dry; friable, moist; noncalcareous pH 7.0 (Soiltex); abrupt amooth lower boundary. 1527 AJ2 6-16 inches. Dark gray (10YR 4/1 dry) to black (10YR 2/1 moist) silty clay losm; weak subangular blocky separating to strong medium and fine granular; hard, dry; friable, moist; numerous medium and fine pores; slightly plastic, wet; noncalcareous or calcareous only in spots; pH 7.5; clear smooth lower boundary. Park gray (10YR 4.5/1 dry) to very dark gray (10YR 3/1 moist) silty clay loam with 1528 gray (10YR 6/1 dry) coatings on the smaller aggregates; massive or weak medium subangular blocky separating to moderate fine and very fine blocky; hard, dry; friable, moist; plastic, wet; numerous lighter colored worm casts from horizon below; violent effervescence, pH 8.5; clear smooth lower 23-30 inches. Gray (10YR 6/1 dry) to dark gray (10YR 4.5/1 moist) silty clay loam; moderate medium subangular blocky breaking to moderate fine and very fine blocky; slightly hard, dry; friable, moist; 1529 Cca violent effervescence, pH 9.0; root openings and pores are coated or filled with white lime resulting in numerous tubular and rounded soft lime segregations; clear amouth lower boundary. ලා 1530 30-36 inches. Gray (10YR 5.5/1 dry) to dark gray (10YR 4.5/1 moist) loam; few faint fine brown mottles; moderate medium subangular blocky breaking to moderate fine and very fine subangular blocky; slightly hard, dry; friable, moist; violent effervescence, pH 9+; clear smooth lower boundary. 1531 36-45 inches. Light brownish gray (10YR 6/2 dry) to dark grayish brown (10YR 4.5/2 moist) fine **C3** sandy losm; many coarse distinct brown mottles; massive; slightly hard, dry; very friable, moist; weak effervescence; clear smooth lower boundary. 1532 45-54 inches. Light gray (10YR 7.5/1 dry) to light brownish gray (10YR 6/2 moist) loamy fine sand; many medium and coarse prominent brown mottles, few medium prominent black soft iron concretions; loose, dry; loose, moist; massive; moderately compact in place, breaks to rounded lumps of varying size; noncalcareous; clear smooth lover boundary. 54-60 inches. Light gray (10YR 7/1.5 dry) to light brownish gray (2.5Y 6/2 moist) lossy fine sand; few faint fine yellowish brown mottles; massive; slightly hard, dry; loose, moist; noncalcareous; 1533 Œ2 saturated. This horizon continues to about 70 inches where it rests on gray plastic silty clay.

Note: The subsoil is a little on the heavy side for Leshara. It is about like Lamoure in subsoil texture to a

depth of 30 inches. Below this depth, however, the texture is too coarse for Lamoure.

SOIL SURVEY LABORATORY Mandan, N. Dak.

SOIL TYPE Leshara LOCATION Hall County, Nebraska

SOIL NOS. S53Nebr-40-4-(1-7) LAB. NOS. 1571-1577

<u> </u>		lBla		PARTI	CLE SIZ	E DISTRIB	UTION (in	(ре	er cent) 3	Äl		<del>,</del>
DEPTH INCHES	HORIZON	VERY COARSE	COARSE	MEDIUM	FINE	VERY FINE					2A2	TEXTURAL CLASS
		SAND 2-1	SAND 1-0.5	SAND	\$AND 0.25-0.10	SAND	SILT 0.05-0.002	CLAY	0 2 0 02	002-0002	> 2	
~ ~	47-											
0-6	Alp	0.3	0.8	1.1	5.5	12.7	58.0	21.6	58.2		-	sil
6-10	Al2	0.1	0.7	1.0	4.5	11.4	59.4	22.9	56.9		-	sil
10-15	AC		0.2	0.3	0.8	14.0	65.8	18.9	64.5	15.8	-	sil
15-24	CI.	0.1	0.1	0.1	0.2	16.3	69.4	13.8	74.9	10.9	_	sil
24-29	Alъ	0,5	0.3	0.1	0.5	1.1	57.6	39.9	20.4		-	sicl
29~36	СТР	0.1	0.1	0.2	5.0	37.9	44.8	11.9	80.6	6.5	-	11
36-48	C20.	-	0.7	1.7	23.0	34.9	25.9	13.8	72.8	6.6	-	vfsl
									<b> </b>			i l

Soil type: Leshara silt loam Soil No.: S53Nebr-40-4-(1-8)

location: 0.3 mile south of NE corner Sec. 2, Thon, Rhow, Hall County, Nebraska.

Topographic position: Platte River bottom land, slightly lower than the alluvial to the north, farther from river.

Relief: Slight.

Drainage: Imperfectly drained.

Ground water: Mater table at 48 inches in July. Probably fluctuates between 3 and 6 feet during the growing season.

Land use: Cultivated.

Described by: B. H. Williams and Donald C. Yost.

Mandan

lab.No. 1571	Horizon Alp	0-6 inches. Dark gray (10YR 4.5/1 dry) to very dark gray (10YR 3/1 moist) silt loam; moderate
		fine and very fine granular; slightly hard, dry; friable, moist; strong effervescence, abrupt smooth lower boundary.

- 1572 Al2 6-10 inches. Dark gray (10YR 4/1 dry) to very dark gray (10YR 3/1 moist) silt loam; moderate medium and fine granular; slightly hard, dry; friable, moist; violent effervescence; numerous very fine and a few large pores and root channels; clear smooth lower boundary.
- 1573 AC 10-15 inches. A horizon of intense earthworm action resulting in about equal proportions of gray and dark gray (10YR 5/1 and 4/1 dry) to dark gray and very dark gray (10YR 4/1 and 3/1 moist) silt losm; moderate fine and very fine granular; slightly hard, dry; friable, moist; violent effervescence; clear smooth lower boundary.
- 1574 C1 15-24 inches. Light gray (2.5Y 7/2 dry) to light brownish gray (2.5Y 6/2 moist) silt loam; moderate medium and fine crumb; slightly hard, dry; friable, moist; strong effervescence; streaks and spots; clear smooth lower boundary.
- 1575 Alb 24-29 inches. Gray (10YR 5.5/1 dry) to dark gray (10YR 4/1.5 moist) silty clay loam; few faint fine brown mottles; weak subangular blocky breaking to moderate fine and very fine subangular blocky; hard, dry; friable, moist; slightly plastic, wet; noncalcareous except for worm casts; clear smooth lower boundary.
- 1576 Clb 29-36 inches. Light brownish gray (2.57 6/2 dry) to grayish brown (2.57 5/2 moist) very fine sandy loam or loam; many distinct coarse brown and yellow mottles and stains and a few coarse dark brown soft concretionary iron spots; massive, breaking to rounded lumps; soft, dry; very friable, moist; noncalcareous; clear smooth lower boundary.
- 1577 C2b 36-48 inches. Similar to horizon above with many prominent coarse brown mottles including concentric staining around root channels that is very dark brown along the opening and grades outward to pale brown or yellowish brown; saturated; noncalcareous; roots from nearby cottonwood trees penetrate to the coarse material below; abrupt lower boundary.
  - D 48+ inches. Not sampled for Mandan laboratory. Light gray (10YR 7/2 dry) coarse clean sand and fine gravel. Water table in this layer and in contact with the silty material above when sampled in June 1953.

SOIL SURVEY LABORATORY Mendan, N. Dak.

OIL TYPE Leshara LOCATION Merrick County, Nebraska

SOIL NOS. S53Nebr-61-1-(1-5) LAB. NOS. 1544-1548

***************************************	<del> </del>	lBla	*****************			***************************************	410K36H74GH7999*		1177717111111111111111	3A1		***************************************
		TDIR		PARII	CLE SIZ	E DISTRIB	UTION (in	mm-) (64	er cont)		2A2	
DEPTH INCHES	HORIZON	SAND	SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY.			> 2	TEXTURAL CLASS
		2-1	1-0,5		0.25-0.10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	0.02-0.002	TAMEN	
0-8 8-14 14-22	Alp AC Allb	0.1	0.6 0.4 2.9	1.4 0.7 4.8	8.1 9.8 10.0	20.2 16.6 13.1	50.6 51.9 37.5	19.0 20.6 31.5	64.0 64.8 40.8	12.4	- -	sil sil cl
22-32 32-39	A12b D	0.8 2.0	7.0 0.4	8.8 21.9	15.8 21.0	13.8 13.5	26.1 26.0	27.7 15.2	39.1 41.9	8.8 7.7	- Tr.	scl fsl
***************************************	******************************	<del>litesteplissteel</del> t	BESSEEL MARKENS (A)		95444914884444444	* 1821- <b>-</b> 9864(\$);1834 <b>\</b>	t 2000 000 000 000 000 000 000 000 000 0		**************************************	341 or pri și c <del>ol</del> itați	***************************************	Mariette (Mariet
	ρΗ			NIC MA	TTER	.8A2	ELECTRI-	61Да	6Fla	MOIST	TURE TE	
8C1b SATU- RATED PASTE	8Cla		6ALA ORGANIC CARBON	NITRO-	C/N	EST% SALT (BUREAU CUP)	CAL CONDUC- TIVITY EC × 103 MILLIMHOS	CoCO3 equiv- alent	GYPSUM me./100g, SOIL	1/10 ATMOS.	1/3 ATMOS.	4B2 15 atmos.
			*	%			PER CM SALS	*		5	*	
7.4 8.0 8.1	7.8 8.4 8.3	7.9 8.6 8.6				<u>a</u>	1.3 0.6 0.7	1 4 9				10.3 10.8 15.6
8.1 7.9	8.4 8.3	8.6 8.3	0.80 0.18				1.2 1.9	10 1	-	i		11.9 7.3
5Ala		***************************************	NO TAL		5B1b	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	BAISATU	PATION	FYTOAC	T SOL		8a
CATION	EXTRAC	TABLE	ATT UNC	EXCHAI	ICEABIE	7.5-		1	<u> </u>	1	<i>*</i>	MOISTURE
EXCHANGE CAPACITY NH <sub>1</sub> Ac		602b Mg		6P2a Na 100g. soil	692a K	EXCH. Na	6Pla No	601a K	ivolents p	- 11200 - 3		SATU- RATION
			#			<b>%</b>		; <b>-</b>	******	?	[	3
22.7 17.8 21.5		5.0 6.2		0.4 0.6 0.7	1.7 1.1 0.8	2 3 3	0.4 0.6 1.7	1.5 0.5 0.4				47.6 51.9 59.1
15.1 11.8		5•3	100000000000000000000000000000000000000	1.1	0.6 0.5	.8 -8	4.8 9.3	0.4 0.4	4144444			52.5 39.0
a. Ie	ss tha	n 0.20	<b>7</b>								***************************************	
								and the state of t			140 OF 144 144 144 144 144 144 144 144 144 14	
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Soil type: Leshara silt loam Soil No.: 853Nebr-61-1-(1-5)

Location: 0.15 mile south of NE corner Sec. 2, Tl2N, R7W, Merrick County, Nebraska.

Topographic position: Platte River bottom land above flood level.

Relief: Slight

Drainage: Imperfectly or poorly drained.
Ground water: Three and one-half to 6 feet below the surface depending on the season.

Land use: Cultivated.

Described by: B. H. Williams and Donald C. Yost.

Mandan

Lab. No. Horizon

0-8 inches. Dark gray (10YR 4/1 dry) to very dark gray (10YR 3/1 moist) silt loam; moderate fine 1544

and very fine granular; soft, dry; friable, moist; very weak effervescence, pH 7.5 (Soiltex);

clear smooth lower boundary.

1545 8-14 inches. Gray (10YR 5/1 dry) to very dark gray (10YR 3/1 moist) silt loam; weak medium sub-

moist; strong effervescence, pH 8.0; clear smooth lower boundary. 1546 14-22 inches. Dark gray (10YR 4.5/1 dry) to very dark gray (10YR 3/1 moist) silty clay losm, with Allb some slightly lighter colored worm casts; weak fine subangular blocky separating to strong fine

and very fine granular; slightly hard, dry; slightly plastic, wet; violent effervescence; clear amooth lower boundary.

1547 A12b 22-32 inches. Gray (10YR 5/1 dry) very dark gray(10YR 3/1 moist) silty clay loam; moderate fine subangular blocky separating to strong medium and fine granular; slightly hard, dry; plastic, wet; violent effervescence; clear smooth lower boundary.

1548 32-39 inches. Light brownish gray (2.5Y 6/2 dry) to dark grayish brown (2.5Y 4/2 moist) sandy loam; common coarse prominent brown mottles and stains common; weak medium and fine granular; very weak effervescence in spots; abrupt smooth lower boundary.

æ 39+ inches. Coarse sand with some fine gravel, not sampled.

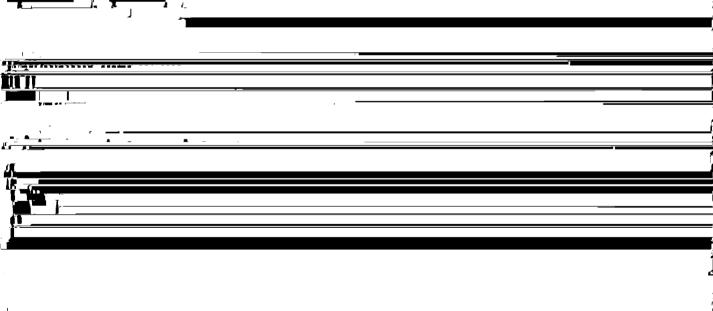
Note: This profile is on the heavy side, in third and fourth horizons, for Leshara but probably is best classed with this series rather than the Lamoure soils, which is the only alternative series at present. In the general area of this location, at least part of the soils are silty throughout. They are moderately permeable but drainage is restricted by the high water table (32 to 6 feet, depending on the season). Occasional slick or "alkali" spots occur in these soils in the general area where sampled.

SOIL SURVEY LABORATORY Mandan, N. Dak.

LOCATION Saunders County, Nebraska SOIL TYPE Leshara silt loam

SOIL NOS. 853Nebr-78-3-(1-8) LAB. NOS. 1490-1497

 	**************************************	1Bla	**************************************	PARTI	CLE SIZ	E DISTRIE	UTION (in	mm.) (pe	r cent)	.3Al	, •	<del>701/4 14 24 14 14 14 14 14 14 14 14 14 14 14 14 14</del>
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	ŞILT	CLAY			2A2 > 2	TEXTURAL CLASS
		2-1	1-0,5	0.5-0.25	0. 25-0. 10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	Q02-Q002		ļ 
0-6	Alp	_	-	-	0.5	18.1	64.4	17.0	68.4	14.4	_	sil
6-10	A12	-	-	-	0.2	17.1	63.2	19.5	65.3	15.2	_	sil
10-13	AC .	-	-	-	0.2	18.4	64.2	17.2	70.0		-	sil
13-19	Cl	-	-	0.2	1.0	27.5	60.4	10.9	77.0		-	sil
19-26	C2	<b>-</b>	-	0.1	0.3	22.7	67.6	9.3	77.1		-	sil
26-32	Cca	0.2	0.3	0.1	0.2	4.5	78.2	16.5	45.1		-	sil
32-46	C3		-	0.1	0.6	27.5	65.6	6.2	84.6		-	sil
46-52	CE ce.C	0.1	0.1	0.1	0.9	4.6	48.4	45.8	25.8	28.0	-	sic
					ł					<u> </u>		Ī
į 1 1	pH	1440011-1111111111111111111111111111111	ORG	INIC MA	TTER	8A2	ELECTRI-	6Ela	6Fla	MOIST	TURE TE	NSIONS
SATUD RATED	8Cla	8cla	6Ala			EST%	CAL CONDUC-	CoCO <sub>3</sub>	GYPSUM			4B2
RATED PASTE	1:5		ORGANIC CARBON		C/N	SALT (BUREAU CUP)	TIVITY EC × 103 MILLIMHOS BFD CM	equiv-	me./100g. SOIL	1/10 ATMOS.	1/3 ATMOS.	15 ATMOS.



Soil type: Leshara silt loss 853Mebr-78-3-(1-8)

Soil No.: 553Mebr-78-3-(1-8)

Location: Five hundred feet south of north 1/4 corner Sec. 25, Tl3M, R9E, Saunders County, Nebraska.

Topographic position: Flatte River bottomland above flood level of the river but may be occasionally flooded by

local runoff.

Relief: Slight, sample site in broad slight swale. Drainage: Experfectly drained. Personal Property of the American Section 1981 - 1981 - 1981 Probably rises to within 32 feet of the surface during wat

Iand use: Cultivated. Crop growth uneven due to presence of "slick spots" and possibly free salts. Described by: B. H. Williams and Donald C. Yost. Mandan lab. No. Horison 0-6 inches. Gray (LOYR 5/1 dry) to very dark gray (LOYR 3/1 moist) silt loam; strong fine granu-1490 Alp lar; slightly hard, dry; friable, moist; noncalcareous, pH 7.2; abrupt smooth lower boundary. 6-10 inches. Gray (10YR 5/1,5 dry) to very dark grayish brown (10YR 3/2 moist) silt loam with A12 1907 Ten time \_ E ... T .. moist; noncalcareous, pH 7.0; clear smooth lower boundary. 10-13 inches. Grayish brown (10YR 5/2 dry) to dark grayish brown (10YR 4/2 moist) silt loam with some darker colored worm casts; moderate medium and fine granular; slightly hard, dry; friable, AC: 1492 moist; noncalcareous, pH 7.0; clear smooth lower boundary. 13-19 inches. Light brownish gray (10YR 6.5/2 dry) to grayish brown (10YR 5/2 moist) silt losm;  $\mathbf{c}_{1}$ 1493 many prominent fine brown mottles and stains; moderate medium and fine granular; soft, dry; friable, moist; many fine and medium pores and root openings; calcareous, pH 7.0; clear smooth lower boundary. C2 19-26 inches. Light gray (2.5Y 7/2 dry) to grayish brown (2.5Y 5/2 moist) silt loam; common 1494 distinct fine brown mottles; massive or very weak coarse subangular blocky; soft, dry; very friable, moist; noncalcareous, or calcareous only in spots, pH 7.5 (Soiltex); clear smooth lower boundary. 26-32 inches. Light brownish gray (2.5Y 6/2 dry) to dark gray (2.5Y 4/1 moist) silt loam, strati-1495 Coa fied with thin lenses of lighter colored silt loam or very fine sandy loam; weak fine granular; soft, dry; friable, moist; violent effervescence, pH 9.0; many white lime spots and small soft concretions; clear smooth lower boundary. 1496 C3 32-46 inches. Light gray (2.5Y 7.5/2 dry) to light brownish gray (2.5Y 6/2 moist) very fine sandy

	SOIL	SURVI	EY LAB	ORATO	RY	incoln,	Nebr.	4/9/58	*** * *********************************	********* *****
	SOIL	TYPE.	Luton silty cl	ay	LOCA	TION	Weshing	on County	, Nebra	ska
	SOIL	NOS.	\$57N	ebr-89-1	(1-8)	LAB.	NO5	6255-626	2	
<u>. F</u>			IRIA	PARTICLE	E SIZE DISTR	• • •	mm.) (per	eni, 3AI	2A2	
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23 July 13 Jul										

Soil type: Luton silty clay Soil No.: S57Nebr-89-1-(1-8)

Location: 175 feet west and 80 feet north of southeast corner of northeast quarter Sec. 28, T20N, RllE, Washington

County, Nebraska.

Physiography: Nearly level Missouri River flood plain, infrequently flooded.

Relief: 1 to 3 feet.

Slope: Smooth level, less than 0.5 percent.

Parent material: Alluvial clays.

Drainage: Poor; surface drainage has been improved by drainage ditches.

Permeability: Very slow.

Salt or alkali: Some CaSOh; much CaCO<sub>3</sub> in Ca horizons; a few shell fragments in calcareous horizons.

Iand use: Cultivated, wheat 1957.

Described by: J. A. Elder and H. L. Kollmorgen.

Horizon and Lincoln Lab. Number

Alp 0 to 6 inches. Black (2.5Y 3/1 moist) to dark gray (2.5Y 4/1 dry) silty clay. Strong fine and medium 6255 granular structure; firm, moist; plastic, wet; noncalcareous. Lower 2 inches of horizon is browner (2.5Y 3/2 moist) than the upper 4 inches of the horizon; abrupt smooth boundary.

Alb 6 to 12 inches. Black (10YR 2/1 moist) to very dark gray (2.5Y 3/0 dry) silty clay. Moderate fine 6256 blocky breaking to strong fine granular structure; firm, moist; hard, dry; noncalcareous; becomes slightly lighter in color in lower part of horizon; abrupt clear boundary.

Ccab 12 to 16 inches. Very dark gray (2.5Y 3/1 moist) to dark gray (2.5Y 4/1 dry) silty clay. Firm, moist; 6257 hard, dry; moderate medium blocky breaking to moderate fine and very fine angular blocks; few faint fine light yellowish brown mottles; weak effervescence; numerous large and small CaCO<sub>3</sub> segregations; abrupt clear boundary.

Alb2 16 to 24 inches. Black (10YR 2/1 moist) to black (2.5Y 2/0 dry) silty clay; weak medium blocky break-6258 ing to fine and very fine angular blocky; firm, moist; hard, dry; matrix noncalcareous; a few fine segregations of CaCO<sub>2</sub>. Gradual smooth boundary.

Al2b2 24 to 33 inches. Black (10YR 2/1 moist) to very dark gray (2.5Y 3/0 dry) clay; moderate medium and 6259 and coarse prismatic breaking to strong fine angular blocky; very firm, moist; very hard, dry; roots are abundant in this horizon but are confined to the faces of the aggregates; few roots go through this horizon; very compact; slickensides present in lower one-third of horizon; matrix noncalcareous; numerous fine and medium CaCO<sub>3</sub> segregations and nests of gypsum crystals common; clear smooth boundary.

A13b2 33 to 43 inches. Black (10YR 2/1 moist) to very dark gray (2.5Y 3/0 dry) clay, grading to 2.5Y 3/2
6260 moist in lower part; strong gleying; moderate coarse prismatic breaking to strong medium blocky;
very firm, moist; very hard, dry; very compact; slickensides present; noncalcareous; a few nests of
gypsum crystals present; clear smooth boundary.

Clb2 43 to 50 inches. Very dark grayish brown (2.5Y 3/2 moist) to dark gray (2.5Y 4/1 dry) silty clay with common medium yellowish brown mottles; strong gleying; moderate medium prismatic breaking to strong medium angular blocky; moist, very firm; very hard, dry; few fine CaCO<sub>3</sub> segregations; weak effervescence throughout; few nests of gypsum crystals; gradual smooth boundary.

Ccab2 50 to 60 inches. Very dark gray (2.5Y 3/1 moist) to dark gray (2.5Y 4/1 dry) clay; moderate coarse 6262 prismatic breaking to moderate medium and fine angular blocky; very firm, moist; very hard, dry; common yellowish brown mottles and many large soft lime segregations; strongly gleyed.

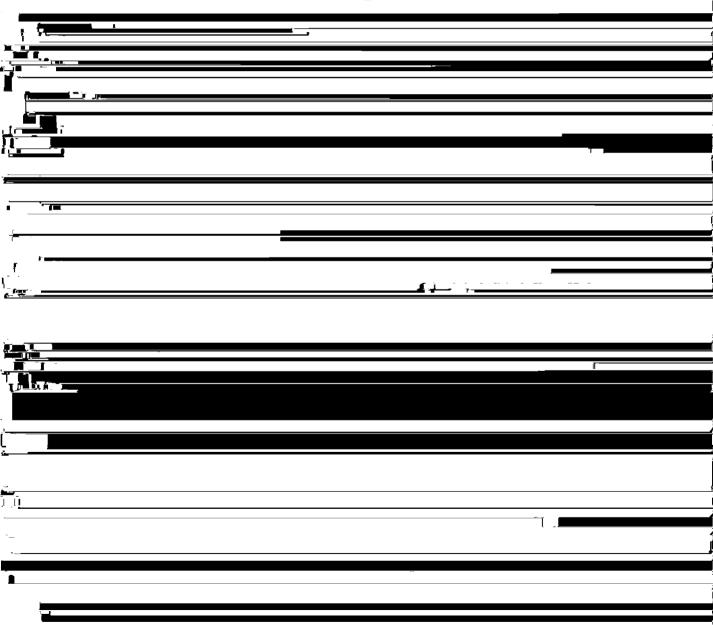
Horizons Alb, Al2b2 and Ccab2 were sampled for the Bureau of Public Roads.

SOIL SURVEY LABORATORY Lincoln, Nebr. 4/9/58

SOIL TYPE Luton LOCATION Washington County, Nebraska silty clay

SOIL NOS. S57Nebr-89-2-(1-8) LAB. NOS. 6263-6270

<del></del>		1Bla	***************************************	PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pa	r cent)	3 <b>A</b> 1	<del></del>	<u>.                                      </u>
DEPTH INCHES	HORIZON	VERY COARSE	COARSE		FINE	VERY FINE					2A2	TEXTURAL CLASS
	İ	SAND	SAND	SANT	SAND	SAND	SILT	CLAY			> 2	l i
L		2-1	1-0.5	0.5-0.25	C. 25-0. 10	0.10-0.05	0.05-0.002			<b>002-000</b> 7		2
0-5	Alb	-	0.la	-	0.1	0.6	37.5	61.7	7.8	30.4	-	e i
5-9	Al2	ļ <b>-</b>	_	-	0.1b	0.46	28.4	71.1	3.0	25.9	-	c
9-12	Alb	-	-	-	-	0.3	27.9	71.8	4.5	23.7	-	c
12-16	Сь	-	-	-	0.lc	0.4c	26.3	73.2	1.8	25.0	-	c ]
16-26	Alb2	-	-	-	-	0.4d	32.4	67.2	7.8	25.0	-	c
26-38	Cu2	Q_1	[_0,1		0.14	0.34	<u> 26.0</u>	<u>73.4</u>	2.5	23.9	-	le l



Soil type: Inton silty clay Soil No.: S57Nebr-89-2-(1-8)

Soil Mo.: S57Mebr-89-2-(1-8)
Location: 300 feet east and 100 feet south of northwest corner Sec. 10, T19N, R11E, Washington County, Nebraska.

Physiography: Nearly level Missouri River flood plain, infrequently flooded.

Relief: 1 to 3 feet.

Slope: Smooth level, less than 0.5 percent.

Parent material: Alluvial clays.

Drainage: Poor; surface drainage has been improved by drainage ditches.

Permeability: Very slow.

Salt or alkali: No evidence of gypsum crystals; considerable segregated CaCO<sub>3</sub>; may be saline salts in lower horizons. Iand use: Cultivated, wheat 1957. Described by: J. A. Elder and H. L. Kollmorgen.

Horrison and Lincoln Jab. Number

O to 5 inches. Very dark gray (2.5Y 3/1 moist) to dark gray (2.5Y 4/1 dry) silty clay; strong medium Alp 6263 and fine granular; firm, moist; hard, dry; weak effervescence; abrupt smooth boundary.

5 to 9 inches. Very dark grayish brown (2.5Y 3/2 moist) to dark gray (2.5Y 4/1 dry) silty clay; strong medium and fine granular; firm, moist; hard, dry; weak effervescence; few small fragments (snail) throughout and a few fine flecks of segregated lime in lower inch; abrupt smooth boundary. 412 6264

Alb 9 to 12 inches. Very dark gray (2.5Y 3/1 moist) to very dark gray (2.5Y 3/1 dry) silty clay; moderate 6265 medium and fine angular blocks breaking to strong fine granules; firm, moist; very hard, dry; noncal-careous matrix with an occasional fleck of segregated lime; clear smooth boundary.

Ф 6266 12 to 16 inches. Very dark grayish brown (2.5Y 3/2 moist) to very dark gray (2.5Y 3/0 dry) silty clay. Moderate medium blocky breaking to fine and very fine angular blocks; weak to strong effervescence; numerous fine white spots of segregated CaCO<sub>2</sub>; few calcareous shell fragments; yellowish brown mottles are common, medium and distinct; abrupt smooth boundary.

A152 16 to 26 inches. Black (2.5Y 2/1 moist) to dark gray (2.5Y 4/0 dry) clay; strong medium and fine angular blocky; very firm, moist; very hard, dry; yellowish brown and reddish brown mottles are common, fine and distinct; lower part of horizon has some mixing from horizon below; no effervescence; an 6267 occasional iron-manganese pellet 1/8 to 1/4-inch in size; clear smooth boundary.

CPS 26 to 38 inches. Very dark grayish brown (2.5Y 3/2 moist) to dark gray (2.5Y 4/0 dry) clay; moderate 6268 coarse prismatic breaking to strong medium angular blocky; very firm, moist; very hard, dry; common medium and coarse yellowish brown mottles; no effervescence except on an occasional firm spot of segregated lime in lower 2 inches of the horizon; clear smooth boundary.

38 to 46 inches. Black (2.57 2/1 moist) to very dark gray (2.57 3/0 dry) clay; moderate medium prismatic breaking to strong medium and fine angular blocky; very firm, moist; very hard, dry; aggregates have shiny coats where moist; matrix is noncalcareous; few fine and medium hard lime concretions; faint АІЪЗ 6269 yellowish brown mottling but most mottling marked by dark color; abrupt wayy boundary.

Cgca 6270 46 to 60 inches. Consists of several thin horizons of dark 2.5Y 2/1, moist, and slightly lighter and browner 2.5Y 3/2, moist, clay; horizons represent periods of thin deposition and intervals of soil development. Strong medium and fine angular blocky; very firm, moist; plastic, wet; strong effer-vescence; memorous fine to coarse spots of segregated lime; few distinct fine and medium yellowish brown mottles; entire horizon appears to be gleyed; free water about 68 inches.

Horizons Alb, Alb2 and CgCa were sampled for Bureau of Public Roads.

<u> </u>	SQIL SURVEY LA	BORATORY Lincoln, Nebr	4/9.58
	SOIL TYPE Marshe silty	clay loam	shington County, Nebraska
		Nebr-89-5-(1-7) LAB. NO	
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Soil type: Marshall silty clay loam

Soil No.: \$57Nebr-89-5-(1-7)

Location: .3 mile west and 180 feet south of northeast corner Sec. 30, T18N, R11E, Washington County, Nebraska.

Physiography: Rolling loss hills, rounded ridge top.

Relief: 100 to 125 feet. Slope: 6 percent east slope. Parent material: Peorian loess.

Drainage: Excessive. Permeability: Moderate.

Salt or alkali: None; lime at 100 inches - segregated - matrix noncalcareous.

Crop: Plowed stubble.

Described by: J. A. Elder and H. L. Kollmorgen.

Horizon and Lincoln Lab. Number

0 to 6 inches. Very dark grayish brown (10YR 3/2 moist) silty clay loam; weak fine and very fine Alp 6285 granular; friable, moist; abrupt smooth lower boundary.

6 to 9 inches. Very dark grayish brown (10YR 3/2 moist) silty clay loam; friable, moist; moderate fine and very fine subangular blocky breaking to a moderate fine granular; clear wavy lower boundary; faces of blocks and granules coated with brown film (crushed color 10YR 5/4); worm casts and dark organic 6286 staining common.

9 to 17 inches. Dark brown (10YR 4/3 moist) silty clay loam; weak coarse prismatic breaking to a R21 6287 moderately strong fine and very fine subangular blocky; faces of blocks coated and shiny (crushed color is lOYR 5/4); full of worm casts, some of which are stained a very dark grayish brown; clear wavy lower boundary.

B22 17 to 27 inches. Dark brown or brown (10YR 4/3 moist) silty clay loam; moderate coarse to medium 6288 prismatic breaking to a weak fine and very fine subangular blocky; faces are coated and shiny when moist; some worm casts; friable, moist; gradual wavy lower boundary.

27 to 42 inches. Lightolive brown (2.5Y 5/4 moist) silty clay loam; very friable, moist; weak coarse B23 6289 prismatic breaking to a weak fine and very fine subangular blocky; many medium distinct gray and yellowish brown mottles; many small pores or channels visible; also, many small black specks (probably manganese) visible; some black staining along old root channels or worm channels; gradual wavy lower boundary.

42 to 54 inches. Light olive brown (2.5Y 5/4 moist) heavy silt loam; very friable, moist; weak coarse prismatic breaking to a weak very fine subangular blocky; many medium gray and yellowish brown mottles; many very fine pores or channels visible; some worm casts throughout; many dark manganese specks and **B**3 6290 black staining in matrix.

54 to 65 inches. Light clive brown (2.5Y 5/4 moist) silt loam; very friable; massive; gray and yellowish brown mottles throughout matrix; manganese specks and streaks are more common than in the E3; 6291 small pores and channels common. The B3 and C horizons appeared very similar except for slightly developed structure aggregates in the B3; they appeared to have a faint coating in places but were difficult to recognize as blocks even in the B3 horizon. The mottling is similar in the B3 and C except the C has somewhat more gray mottlings and the manganese specks and streaks were more numerous and somewhat larger.

Note: For practical purposes the B3 and C horizons appeared about the same and distinct differences are hard to recognize except on the profile in the pit. In probing deeper, segregated lime was encountered at 100 inches, but the matrix was noncalcareous. Horizons Alp, B22 and C were sampled for Bureau of Public Roads.

SOIL TYPE Marshall LOCATION Washington County, Nebraska silty clay loam

SOIL NOS. <u>\$57Nebr-89-8-(1-6)</u> LAB. NOS. 6306-6311

49 M4 10101 440101 691 44	**************************************	lBla.	***************************************	PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	mm	3 <b>A</b> l	*************	vasar Bådda fil <del>dsfredd</del> filse
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY		( <sub>-</sub>	2A2 > 2	TEXTURA CLASS
		2-1	1-0,5	6,5-0,25	0.25-0.10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	002-0002		L
0-7	Alp	O.la	0.la	-	0.1ъ	1.8b			41.9		-	sicl
7-15	B21	-	-	-	0.1b	1.9b		33.7			-	sicl
15-25	1822	-	-	-	0.1b	3.2ъ		32.1	40.4	27.5	-	sicl
	B23	-	-	-	0.lb	2.7b			42.1		_	sicl
37-47	B3	-	-		0.1b	2.86		29.2	43.0		-	sicl
47-60	C	-	-	-	0.1b	ვ.4ზ	68.5	28.0	44.4	27.6	-	sicl
) \$155     1 <del>1001   1</del> 1   12   12   12   12   12   12	PH			NIC MĄ		,, <u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	ELECTRI-	бела	1 1 1 1 1 1 1 1 1 1 1	MOIST	URE T	
8Cla			6Ala	6Bla		EST% SALT	CAL CONDUC-	CoCO3	GYPSUM			4182
	1:5		ORGANIC CARBON		C/N	(BUREAU CUP)	TIVITY EC 103 MILLIMHOS PER CM		me./100g. SOIL	1/10 ATMOS.	1/3 ATMOS.	15 ATMOS.
1:1			%	. %			CER CM	%		%	5	
6.2			1.64	.156	10.5		İ			į		12.7
6.3			0.84	.082	10.2				Ī	<u> </u>	1	14.3
6.5	j i		0.43	.048	9.0			Ī	ĺ	i		13.8
6.7	Ī		0.23					•		i		13.9
6.8			0.17					<u> </u>	İ			13.8
6.9	1		0.13			_		-	ŧ	į	Ĺ	13.8

Soil type: Marshall silty clay loam

Soil No.: S57Nebr-89-8-(1-6)
Location: 450 feet west and 110 feet north of southeast corner of southwest quarter Sec. 29, T17N, R1LE, Washington

County, Nebraska.

Physiography: Rolling loess ridge, east slope. Relief: 80 to 100 feet.

Slope: 6 percent east slope.

Parent material: Peorian loess (Brown loess).

Drainage: Excessive.

Permeability: Moderate to moderately slow.

Salt or alkali: None; no lime in this location to 120 inches.

Land use: 1957, oats and sweetclover.

Described by: J. A. Elder and H. L. Kollmorgen.

Horizon and lincoln Lab. Number

0 to 7 inches. Dark brown (10YR 3/3 dry) to very dark brown (10YR 2/2 moist) silty clay loam; hard, Alp dry; very friable, moist; weak fine to very fine granular; some worm casts and channeling. Lime was added to this field one year ago and these lime fragments were in this horizon; effervescence occurred 6306 only on these fragments; clear smooth lower boundary.

B21 7 to 15 inches. Brown (IOYR 4/3 dry) to dark brown (IOYR 3/3 moist) silty clay loam; moderate coarse 6307 prismatic breaking to a moderate fine and very fine angular blocky; some worm casts and channeling; roots thick in this horizon; faces of blocks are a shiny brown but when crushed are a yellowish brown (10YR 5/4) when dry; clear wavy lower boundary.

15 to 25 inches. Brown (10YR 5/3 dry) to brown (10YR 4/3 moist) silty clay loam; moderate coarse and B22 medium prismatic breaking to a moderate fine and very fine angular blocky; faces of blocks and prisms have a brown shiny coating but when crushed are a light yellowish brown (10YR 5/4) when dry; many fine 6308 pores, channels and worm casts; hard, dry; friable, moist; clear wavy lower boundary.

B23 25 to 37 inches. Pale brown (10YR 6/3 dry) to brown (10YR 5/3 moist) silty clay loam; weak coarse and medium prismatic breaking to a coarse and medium cloddy or weak coarse and medium angular blocky; many 6309 small openings or channels plus worm casts; distinct medium-sized yellowish brown and gray mottles; hard, dry; friable, moist; faces of blocks are shiny; some small to medium iron and manganese concretions and many brown to black specks of iron or manganese; clear wavy lower boundary.

37 to 47 inches. Pale brown (10YR 6/3 dry) silty clay losm; weak medium to coarse prismatic breaking **B**3 6310 to weak coarse and medium blocky or cloddy fragments; entire matrix is mottled with gray and yellowish brown so that basic color of matrix is hard to determine; many small and large iron stains and many small specks which are rusty brown to black; dry, hard; very friable, moist; gradual irregular lower boundary.

47 to 60+ inches. Fale brown (10YR 6/3 dry) light silty clay loam; slightly hard, dry; very friable, 6311 moist; weak coarse prismatic to massive; entire matrix so mottled with gray and yellowish brown that basic color is difficult to determine; mottlings are many, coarse and distinct; many pores or small channels or openings throughout matrix, many small brownish black and black iron-manganese specks; worm casts or insect workings scattered through matrix.

Note: Borings were made to 120 inches in this hole and no lime was encountered to this depth. The soil material was a continuation of mottled brown loss to 120 inches. The texture also continued as a light silty clay loam. Two samples were taken of this lower loess for correlation -- one sample of material from 60 to 100 inches and a second from 100 to 120 inches. Horizons Alp, B22 and C were sampled for Bureau of Public Roads.

SOIL SURVEY LABORATORY Lincoln, Nebr. 4/9/58

SOIL TYPE Marshall LOCATION Washington County, Nebraska silty clay loam

SOIL NOS. S57Nebr-89-9-(1-7) LAB. NOS. 6312-6318

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nomonoi PH	************				<b>60162408080</b> 98643+134;	:ELECTR:					
1		6Ala	6Bla		EST%	CONDUC-		A./D.			4B2
1:5	1:10	ORGANIC CARBON	NITRO- GEN	C/N	(GUREAU CUP)	TIVITY EC-103 MILLIMHOS PER CM	eguir- alent	GYPSUM ma,/190g. SOIL	ATMOS.	1/3 ATMOS.	15 ATMOS
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				4	SAT.	Base		bA3a	Ì	_ •	
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Co	Mg	н	No	ĸ	EXCH.				Ì		
	miillequiv	olents per	100g. soil		5C1	503				A.00	
:		11.0	-	8.0	74	58					
13.5	4.8			0.5	80		18.8	28.7			İ
14.2	<b>5.</b> 9	9.1	0.1	0.5	86	69	20.7	29.3			1
15.4	6.4			0.4	91		22.3	29.5	]	1.32	1
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16.6			•				24.1	• "	<b>*</b>		ļ
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Few	rregu	lar li	ht br	pwn coi	per. (Fe	-Mn?)	Ī				
					į		İ	Ī	•		
	Alp AB B21 B22 B23 B3 C PH 1.5 1.5 14.2 15.4 16.3 16.6 17.0	EXTRAC 6N2b 602b  co Mg  1.0 3.6 13.5 4.8 14.2 5.9 16.6 6.9 17.0 7.0	PH CRGA  1:5 1:10 CARBON  EXTRACTABLE  6N2b 602b 6H1a  Ca Ma H  1.0 3.6 11.0  1.1.0 3.6 11.0  1.3.5 4.8 9.9  14.2 5.9 9.1  15.4 6.4 7.2  16.3 6.9 5.6  17.0 7.0 4.4	1.05   0.50	1.78	CORREST   COARSE   MEDIUM   FAME   SAND	COARSE   COARSE   MEDIUM   FINE   SAND   S	CREANIC MATTER   CARSON   CARDON   CA	CARPSE   COARSE   METILM   SAND   S	CRIST   CARSE   MATTER   CARSE   MATTER   CARSE   CARSE   MATTER   CARSE   CARSE   CARSE   MATTER   CARSE	VERY   CARSE   COARSE   MEDILIM   SAND   S

Soil type: Marshall silty clay loam Soil No.: S57Nebr-89-9-(1-7)

Location: 180 feet south and 135 feet west of northeast corner of southeast quarter of northeast quarter Sec. 25,

TITN, RICE, Washington County, Nebraska.

Physiography: Slightly rounded ridge top is dissected losss plain.

Relief: 60 to 80 feet.

Slope: 1 percent, smooth slightly convex. Parent material: Peorian losss.

Drainage: Well drained.

Permeability: Moderately slow.

Salt or alkali: No carbonates to 120 inches.

Land use: 1957, cats and seeding of alfalfa.

Described by: J. A. Elder and H. L. Kollmorgen.

Borizon and Lincoln Lab. Number

0 to 7 inches. Very dark brown (10YR 2/2 moist) to dark grayish brown (10YR 3.5/2 dry) silty clay loam; Alp moderate subangular clods breaking to fine and very fine granules; friable, moist; slightly hard, dry; 6312 no effervescence; abrupt smooth boundary.

7 to 11 inches. Very dark brown (10YR 2/2 moist) (10YR 3/3 moist crushed) to dark grayish brown (10YR 4.5/2 dry) silty clay losm; moderate fine granular; friable, moist; slightly hard, dry; abundant roots, AR 6313 few worm casts; no effervescence; clear smooth boundary.

B21 6314 11 to 17 inches. Dark brown (lOYR 3/3 moist) (lOYR 4/3 dry) silty clay loam; weak medium prismatic breaking to fine and very fine subangular blocky; slightly firm, moist; hard, dry; abundant roots, few worm casts and openings, numerous fine and very fine pores; no effervescence; clear smooth boundary.

B22 17 to 30 inches. Dark brown (10YR 3/3.5 moist) (10YR 4/3 moist crushed) to brown (10YR 5.5/3 dry) silty 6315 clay loam; moderate medium prismatic breaking to moderate fine and very fine subangular blocky; slightly firm, moist; slightly hard, dry; abundant roots and very fine pores within aggregates; thin continuous coatings on large and small aggregates; fine gray and yellowish brown mottles in lower 2 inches of the horizon that are few, faint and fine; no effervescence; clear smooth boundary.

30 to 40 inches. Dark brown (10YR 3.5/3 moist) to brown (10YR 5.5/3 dry) silty clay loam; weak coarse primmatic breaking to weak medium subangular blocky; slightly firm, moist; slightly hard, dry; numerous fine and very fine pores; abundant roots on faces of large aggregates; common faint fine yellowish 123 6316 brown mottles; common distinct medium strong brown mottles; no effervescence; clear smooth boundary.

40 to 48 inches. Park brown (10YR 3.5/3 moist) to brown (10YR 5.5/3 dry) silty clay loam; weak coarse #3 6317 prismatic breaking to weak medium and coarse subangular blocky; friable, moist; slightly hard, dry; numerous fine and very fine pores, few medium pores; common faint fine yellowish brown mottles; common distinct medium strong brown mottles; a few dark brown soft fine manganese concretions; few roots; no effervescence; gradual smooth boundary.

48 to 60 inches. Brown (10YR 4/3 moist) to pale brown (10YR 6/3 dry) silty clay loam; weak coarse 6318 prismatic, no smaller aggregates; thin coating on prisms; mottling as in horizon above with gray mottles common, faint and coarse; no effervescence.

Note: Substrata checked for effervescence to a depth of 120 inches; no effervescence. Horizons Alp, B22 and C sampled for Bureau of Public Roads.

SOIL SURVEY LABORATORY Mandan, N. Dak.

SOIL TYPE Mitchell LOCATION Scotts Bluff County, Nebraska

silt loam

SOIL NOS. S53Nebr-79-4-(1-6) LAB. NOS. 1959-1964

*****	110110414000007***	1Bla	·*************************************	PARTI			UTION (in		er cent)	3 <b>A</b> 1		<del>ppriserppersonersium</del> ! i
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURA CLASS
		2-1	7-0.5	0.5-0.25	0. 25-0. 10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	<b>003-0003</b>	-	
0-6	Alpl	-	0.3	0.3	2.4	24.5	52.8	19.7	56.7	22.4	-	Bil
6-10	Alp2	-	0.2	0.3	2.3	24.8	52.0	20.4	55.9	22.7		Bil
10-16	B2 .	-	0.3	0.5	3.1	27.9	56.2	12.0	60.9	25.5	1	Bil
16-29	Cl	-	1.1	1.1	4.2	28.9	54.8	9.9	64.1	22.4	î .	sil
29-41	C2	-	0.6	0.7	3-5	34.7	52.5	8.0 6.3	66.0 68.8	23.8		sil sil
41-60	<b>c</b> 3	-	-	1.0	3-5	32.5	56,7	0.3	00.0	23.0	-	PTT
+1 (43+ <b>344+444</b> 4323443	т рН	*************		NIC MA	TTER	8A2	ELECTRI-	6Ela	6Fla	MOIST	URE TE	MINIONS
8СТР <b>SATU</b> -	8cla	8Cla				EST%	CAL CONDUC-					4B2
SATU- RATED PASTE	1:5		ORGANIC CARBON	NITRO-	C/N	SALT (BUREAU CUP)	TIVITY EC×103 MILLIMHOS	CoCO3	GYPSUM me./100g. SOIL	1/10 ATMOS.	1/3 ATMOS.	15 ATMOS.
- 1,222	1.0		75	*			PER CM SAJA	*	1	%	*	*
7.8	8.3	8.5	1.00				0.9	1				14.1
7.6	8.2	8.5	0.92	1		<u>a</u>	0.8	2				14.8
7.7	8.3	8.5	0.44				0.8	6				15.0
7.7	8.3	8.6	0.24				0.8	8	-			13.8
7.7	8.3	8.7	0.13	1			0.8	7	-			12.7
7.7	8.4	8.7	0.06		1		0.8	6	-			12.5
5Ala	5 <u>Rla</u>		CATIONS		5 <u>B</u> 16"	5D2	BALSATU	RATION	EXTRAC	T SOLU	LE	8
CATION	EXTRAC	TABLE   602b		6P2a	WGEABIE 602a		6Pla	6Qla				MOIŞŢUR
XCHANGE APACITY	Ca	Meg		Na.	K K	EXCH.	No	K				SATU- RATION
NH <sub>4</sub> OAc		_	! Glente per		,	No %		i _ millioqui	į Įvolents pr	i priliter——	•	KAIIO
				-				0.6				52.8
26.3		5.4		0.5	1.8	2	1 7.7	, O.O.				1 72.0
26.3 26.4		5.4 5.2		0.5 0.5	1.8 1.9	2	3.5 3.5	0.6				53.4
26.3 26.4 25.4		5.4 5.2 5.5			;	2	3.5 3.5	0.6				53.4 52.8
26.4	•	5.2		0.5	1.9	2	3.5	0.6	777711			53.4

Soil type: Mitchell silt loam 853Nebr-79-4-(1-6) Date sampled: October 1, 1953

Location: Right hundred feet east and 80 feet north of WL/4 corner Sec. 14, T22N R56W, Scotts Bluff County, Nebraska.

Topographic position: Terrace.

Relief: Slight, smooth slope less than 1 percent, north facing.

Drainage: Well drained.

Described by: Described by: John Elder.

Ground water: 50 to 60 feet.

Salt or alkali: No indication of either or of conditions which would result in accumulation of either at sample site.

Root distribution: Normal throughout. No evidence of limiting horizons.

Land use: Irrigated from ditch--beans 1953. Crop harvested prior to sampling, no yield available. Mandan

## Horizon Lab. No.

0-6 inches. Pale brown (10YR 6/3 dry) to dark grayish brown (10YR 4/2 moist) silt loam. Weak 1959 Alpl coarse subangular blocks breaking to weak very fine subangular blocks and weak fine and very fine granules, hard dry, friable moist, strong effervescence, abrupt smooth boundary.

6-10 inches. Fale brown (10YR 6/3 dry) to dark grayish brown (10YR 4/2 moist) silt loam. Weak fine subangular blocky to fine and very fine moderate granular (almost completely reworked by worms 1960 Alp2 and insects) slightly hard dry, friable moist, strong effervescence, abrupt, smooth boundary.

1961 **B**2 10-16 inches. Pale brown (10YR 6/3 dry) to dark brown (10YR 4.5/3 moist) silt loam. Very weak coarse blocky breaking to weak fine blocks and weak fine granules, slightly hard dry, friable moist, many worm casts and large root and insect openings, violent effervescence; clear, irregular

1962 Cl 16-29 inches. Very pale brown (10YR 7/3 dry) to brown (10YR 5/3 moist) silt loam; massive but tends to break to very weak very fine granules or crumbs, soft dry, very friable moist, some small worm casts, a few very fine white lime specks and very fine brownish yellow mottlings, violent effervescence, diffuse wavy boundary.

29-41 inches. Very pale brown (10YR 7/3 dry) to brown (10YR 5/3 moist) silt loam; massive crushing 1963 œ to single grain, soft dry, very friable moist, few faint brownish yellow mottles along some root openings, violent effervescence; diffuse, wavy boundary.

41-60 inches. Very pale brown (10YR 7/3 dry) to brown (10YR 5/3 moist) loam; massive crushing to 1964 C3 single grain, soft dry, very friable moist, violent effervescence; continues below 60 inches to undetermined depth.

SOIL SURVEY LABORATORY Mandan, N. Dak.

SOIL TYPE Mitchell LOCATION Scotts Bluff County, Nebraska silt loam

SOIL NOS. <u>553Nebr-79-2-(1-6)</u> LAB. NOS. <u>1947-1952</u>

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DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND		FINE SAHD	VERY FINE SAMD	SILT	CLAY			2A2 > 2	TEXTURA CLASS
		2-1	1-0.5	0,5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	0.02-0.002		
0-7	Alp	-	0.4	0.6	3.3	26.5	52.1	17.1	60.1	20.9	-	s <u>i</u> l
7-12	B2	_	0.3	1.0	5.5	23.8	45.1	24.3	50.6	55.0	-	1
12-17	В3	-	-	0.9	5.6	18.2	48.6	26.7	46.1	24.7	<b>-</b>	1
17-28	C1.	-	-	0.5	3.2	11.6	59.4	25.3	36.0	37.2		sil
8-42 12-60	CS.	-	-	1.1 3.2	6.2 17.2	21.6 24.9	52.5 37.1	18.6 17.6	53.7 57.8	24.6 15.5		sil l
iz-00 j	<b>c</b> 3	-	-	3.2	¥1•E	24.9	21.47	11.0	٠,١٠٥	رەرىد	-	
*************	pH	444444444444444	~~~~	MIC MA	! ************************************	8A2	ELECTRI-	6Ela	6Fla		URE TE	inmenene ENGLANC
SATU-		8cla	6Ala		i i ex	,	CAL.			,	VIL. 15	4 <b>F</b> £
SATU- RATED PASTE	1:5		ORGANIC CARBON	NITRO-	C/N	EST% SALT (BUREAU CUP)	TIVITY EC×103 MILLIMHOS PER CM	equiv- olent	GYPSUM me./100g. SOIL	ATMOS.	1/3 ATMOS.	ATMOS
<del></del>		0 6				*********		*		*	?	12.4
7.8 7.7	8.2	8.5	0.80			4	1.2 1.3	2				15.2
7.7	8.3	8.5	0.30				1.5	10				15.9
7.8	8.5	8.8	0.18				1.4	14	-		,	16.9
7.8	8.5	8.8					1.3	6	-			13.3
7.8	8.6	8.9	0.08				1.0	6	-			11.5
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5Ala	5Bla	························	ATIONS	3	<b>530</b> b	"""5 <b>D</b> 2	8A1satu	RATION	EXTRAC	T SOLUE	BLE	87
ATION	EXTRAC		!		GEABLE		6Pla	601a	[			MOISTU
CHANGE NELOAC	Ca	602b Mg		6P2a Na	692a K	ЕХСН,	No	K				SATU- RATIO
			olonts per	100g, sol	<u> </u>	No %	<del></del>		ivalents p	or filter		5
24.0		4.9		1.1	2.0	5	4.9	0.6	1			49.2
26.5		5.6	•	1.4	1.9	5 6	5.5 6.1	0.4				55.3 55.8
25.5		5.3 6.4		1.5	1.6	7	7.0	0.4				57.4
27.4 23.0		5.6		1.6	2.4	7	6.7	0.6				46.2
18.8		4.7		1.7	2.0	9	6.4	0.6	1			39.2
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	And the edifficient and the model of the first of the fir			rederiteratur en en en			Andread in the grant of the control	Mekskeladere i agallek in grev r refa k.v.	ign vin <del>n startarten</del> n von en skallen disenten	des residents es tended la capacida estado		Maria de se de se de se de se de se de se de se de se de se de se de se de se de se de se de se de se de se de

Soil type: Mitchell silt loam 853Nebr-79-2-(1-6) Soil No.:

Location: Near center of Sec. 19, T22N R55W, Scotts Bluff County, Nebraska. North of Highway 86, 1/2 mile west of "turn off" to Scotts Bluff National Monument.

Topographic position: Terrace.
Relief: Slight, flat slope less than 1 percent, north facing.

Drainage: Well drained.

Rescribed by: John Elder.

Ground water: Water table about 46 feet. Salt or alkali: No indication of either at the sample site or nearby. Root distribution: Normal throughout. No evidence of limiting horizons. Roots most numerous between 7 and 17

inches.

Land use: Irrigated from ditch-beans 1953. Harvested and ground plowed prior to sampling. Farmer reports moder-

Mandan	ate to	high yields. Commercial fertilizer used on beets, not on other crops.
IAb. No. 1947	Horizon Alp	0-7 inches. Light brownish gray (10YR 6.5/2 dry) to dark grayish brown (10YR 4.5/2 moist) silt loam. Coarse weak subangular blocks breaking to fine and very fine weak granules, slightly hard dry, friable moist, strong effervescence, grades abruptly and smoothly.
1948	B2	7-12 inches. Light brownish gray (10YR 6/2 dry) dark grayish brown (10YR 4/2 moist) silty clay loam. Coarse weak blocky breaking to medium and fine moderate blocks and fine weak granules. Slightly hard dry, friable moist, strong effervescence. The aggregates, when crushed, are slightly lighter than 10YR 4/2 moist, roots are abundant, many worm holes and insect openings are present, some are filled with lighter colored soil material. Gradual, wavy boundary.
1949	233	12-17 inches. Pale brown (10YR 6.5/3 dry) to brown (10YR 5/3 moist) silty clay loam. Coarse weak subangular blocky breaking to medium and fine weak subangular blocks, friable moist, slightly hard dry. Many large worm holes filled with darker material from above, many fine pore and root openings, few roots, strong effervescence, clear irregular boundary.
1950	СI	17-28 inches. Very pale brown (LOYR 7/3 dry) to brown (7.5YR 5/4 moist) silt loam. Coarse very weak subangular blocky breaking to fine and very fine very weak subangular blocks and fine weak granules. Soft dry, friable moist, violent effervescence, many root openings and worm openings, few roots, no segregated lime. Diffuse, smooth boundary.
1951.	C2	28-42 inches. Very pale brown (10YR 6.5/3 dry) to brown (10YR 5/3 moist) silt loam; coarse weak subangular blocky breaking to weak medium to fine subangular blocky and very fine weak granules; slightly hard, dry; friable, moist; strong effervescence; many fine white lime spots in pores and old root channels; many fine and very fine pores; diffuse smooth boundary.
1952	<b>c</b> 3	42-60 inches. Pale brown (10YR 7/3 dry) to brown (10YR 5/3 moist) loam. Coarse very weak sub- angular blocky breaking to very fine weak subangular blocks and fine weak granules. Soft dry, friable moist, violent effervescence, few fine white lime spots and coatings in pore and root openings.

Note: Mixing of partially weathered Brule materials gives the 12-17 inch and 17-28 inch horizons a pinkish cast which is accented under moist condition. Horizon of 28-42 inches appeared to be an horizon of an old soil. The dry sample shows only slightly different color from the horizon above. If this is an old surface, development must have been slight.

SOIL SURVEY LABORATORY Lincoln, Nebr. 4/9/58

SOIL TYPE Monone LOCATION Washington County, Nebraska silt loam

SOIL NOS. S57Nebr-89-3-(1-7) LAB. NOS. 6271-6277

7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	*************	1Bla	,	PARTI	CLE SIZ	E DISTRIE	UTION (in	mm.) (pe	mmmmmm er cont)	3 <b>A</b> 1	***************************************	***************************************
DEPTH	HORIZON	VERY	COASSE	MEDIUM	51115	VERY FINE	•				2A2	TEXTURAL
INCHES	HORIZON	SAND	SAND	MEDIUM	SAND	SAND	SILT	CLAY			> 2	CLASS
ļ		2-1	1.0.5	0.5-0.25	0, 25-0, 10	0.10-0.05	6.05-0.002			002-0003	<19mm)	
0-6	Alp	-	-	-	-	1.3	70.4	28.3			Tr.	sicl
6 <b>-</b> 9 9-15	Al2 B2l	_	<b>-</b>	-	_	1.3 1.2a	69.9 69.9	28.8 28.9		30.2 31.1	-	sicl sicl
15-27	B22	_	_	_	-	1.6a	70.3	28.1			_	sicl
27-34	<b>B</b> 23	-	-	-	0.1	1.9a	72.5	25.5		, ,	_	sil
34-47	<b>B</b> 3	-	-	-	-	1.8ъ	69.0	29.2		,	-	sicl
47-62	С	-	-	-	0.1	2.4a	70.7	26.8	44.2	29.0	-	sil
; ; ; ; ;		1045948884938977744		NIC MA		. 144444 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ELECTRI-	6Ela		AADISI	URE TE	NSIONS
8cla			6Ala			EST%	CAL CONDUC					4 <b>B</b> 2
		1:10	ORGANIC	NITRO-	C/N	SALT (BUREAU	EC×103	cquiv-	GYPSUM	1/10	1/3	15
1.1	1:5	1110	CARJON %	GEN %	CN	CUP)	MILLIMHOS PER CM	alent %	SCIL.	ATMOS.	ATMOS. %	ATMOS. %
6.0			1.83	.171	10.7				+		2	12.0
6.0			1.64	.155	10.6		Ī					12.2
6.4			1.13	.108	10.5							12.6
6.7			0.55	.061	9.0							12.7
6.7			0.33					-				12.5
6.7 7.0			0.22 0.15					_				13.5 12.8
1.0			V/									12.0
5Ala		EXTRAC	TABLE	CATIONS	5Bla	BASE SAT.	Base	5Bla	5A3a	, , , , , , , , , , , , , , , , , , ,	Vol.	
CATION EXCHANGE	6 <b>№</b> 2b	602ъ	6на	6P2a	602a	NELL AC	Sat. %	:	Sum		Wt.	
CAPACITY NH), Ac	Ço.	Mg	н	No	ĸ	EXCH	on Sum Cations	Bases	Ontions		g/cc	
+		mi!liequiv	alems per	160g. soli		5C1		<b>←</b> пе/	00 g->		4A3a	
21.7	12.2		10.0	0.1	0.7	77	62	16.7				
21.6	12.8		9.6	-	0.4	84	65	18.1				
21.9	13.9 14.7		7.7 6.9	0.1	0.2 0.2	91 99	72 76	20.0	1 1 1		1.26	
20.4	14.2		4.9	0.1	0.2	100	81	20.6			1,20	
23.3	16.3	6.9	4.4	0.1	0.3	100	84	23.6	28.0			
22.9	16.4	6.8	4.0	0.2	0.3	100	86	23.7	27.7		1.24	
e. b.	Common Common	n smoo	th bro	wn cor	er. (1 er. (1	re-Mn?) re-Mn?)	Also fe	w Ca(	103 cor	er.		

Soil type: Monona silt loam Soil No.: S57Nebr-89-3-(1-7)

Location: .15 mile north and 100 feet west of southeast corner Sec. 18, T19N, R11E (on ridge top 75 feet west of

light pole) Washington County, Nebraska.

Physiography: Gently rolling ridges on loss uplands; 1 percent slope. Relief: 160 feet to 200 feet.

Relief: 160 feet to 200 feet.
Parent material: Peorian loess.
Deminage: Peressive.

Drainage: Excessive. Permeability: Moderate. Crop: Oats stubble.

Described by: J. A. Elder and H. L. Kollmorgen.

Horizon and Lincoln Lab. Number

Aln \_\_\_\_\_\_O.to\_6\_inches. Dark brown (10YR 3/3 drv) to very dark brown (10YR 2/2 moist) silt loam: weak fine and

numerous small pores or openings.

Al2 6 to 9 inches. Dark grayish brown (10YR 4/2 dry) to very dark grayish brown (10YR 3/2 moist) heavy 6272 silt loam; weak very fine granular; full of worm casts and has many minute openings; very friable, moist; this layer is somewhat compressed like a plow layer; clear wavy boundary.

B21 9 to 15 inches. Brown (10YR 5/3 dry) to dark brown (10YR 4/3 moist) silty clay loam; weak coarse and 6273 medium prismatic to weak fine and very fine angular blocky; full of worm casts and contains many fine openings; crusheddry color 10YR 5/4; very friable, moist; clear wavy lower boundary.

B22 15 to 27 inches. Yellowish brown (10YR 5/4 dry) to dark brown (10YR 4/3 moist) silty clay loam; weak 6274 coarse prismatic breaking to weak fine and very fine subangular blocky; friable, moist; worm casts numerous and open channels and fine openings throughout; some dark stainings around worm casts and some very faint light grayish brown mottling; gradual wavy lower boundary.

27 to 34 inches. Pale brown (10YR 6/3 dry) to dark brown (10YR 4/3 moist) silty clay loam; friable,
6275 moist; many fine openings or pores and some worm or root channels filled with lighter-colored material.

Light grayish brown mottlings are common but faint; gradual wavy lower boundary.

3 34 to 47 inches. Pale brown (10YR 6/3 dry) to brown (10YR 5/3 moist) heavy silt loam; very friable,
276 moist; many small openings and channels throughout; yellowish brown mottlings are medium-sized and
distinct throughout; weak coarse prismatic to weak fine and very fine subangular blocky; gradual wavy
boundary.

C 47 to 62 inches. Pale brown (10YR 6/3 moist) silt loam; very friable, moist; very porous, containing many very fine openings and worm channels; iron stains throughout; gray to yellowish brown mottlings are common and distinct; massive structure.

Horizons Alp, B22 and C sampled for Bureau of Public Roads.

SOIL SURVEY LABORATORY Lincoln, Nebr. 4/9/58 SOIL TYPE Monona LOCATION Washington County, Nebraska silt loam SOIL NOS. S57Nebr-89-10-(1-7) LAB. NOS. 6319-6325 PARTICLE SIZE DISTRIBUTION (in mm.) (per ceni) 3AL DEPTH HORIZON COARSE COARSE MEDIUM FINE SAND SAND SILT CLAY > 2 0.5-0.25 0.25-0.10 0.10-0.05 0.05-0.002 < 0.002 0.2-0.02 0.02-0.002 0-6 Alp 74.0 24.7 47.3 28.0 -1.3a sil 72.9 25.9 44.2 29.9 Al2 1.2a sil 9-13 BL 10.1 1.00 sil.

Soil type: Monona silt loam Soil No.: S57Nebr-89-10-(1-7)

location: .2 mile west and 1200 feet south of northeast corner of northwest quarter Sec. 18; T17N, R12E, Washington

County, Nebraska. Approximately 400 feet east and 100 feet north of center of northwest quarter on ridge top;  $\frac{1}{2}$  miles west and 1/2 mile south of Ft. Calhoun, Nebraska.

top; 42 miles west and 1/2 mile south of Ft. Calhoun, Nebrasi Physiography: Rounded ridge top in strongly rolling losss country.

Relief: 200 feet.

Slope: 1 percent on top of rounded ridge top.

Parent material: Peorian loess.

Drainage: Excessive. Permeability: Moderate. Salt or alkali: None. Crop: Oats stubble.

Described by: J. A. Elder and H. L. Kollmorgen.

Horizon and Lincoln Lab. Number

Alp

0 to 6 inches. Dark brown (10YR 4/3 moist) silt loam; weak very fine crumb; slightly hard, dry; wery friable, moist; abrupt smooth lower boundary; many fine roots in this material.

6319 friable, moist; abrupt smooth lower boundary; many fine roots in this mate

Al2 6 to 9 inches. Very dark grayish brown (10YR 3/2 moist) silt loam; slightly hard, dry; very friable, 6320 moist; moderate fine and very fine granular structure; full of worm casts and many fine openings or small channels; granules have thin shiny dark brown coating, crushed color is 10YR 4/2.

9 to 13 inches. Dark grayish brown (10YR 4.5/2 dry) to very dark grayish brown (10YR 3/2 moist) heavy 6321 silt loam; slightly hard, dry; very friable, moist; moderate fine and very fine subangular blocky; dark shiny coatings on faces of blocks; worm casts numerous and contain many fine pores or openings or channels; clear wavy lower boundary.

B21 13 to 22 inches. Brown (10YR 5/3 dry) to dark brown (10YR 3.5/3 moist) heavy silt loam; moderate fine 6322 and very fine subangular blocky; hard, dry; very friable, moist; worm casts throughout this layer; many fine openings and channels; dark coating on faces of blocks; gradual wavy lower boundary.

SOIL	SURVEY	LABORATORY	Lincoln,	Nebraska	5/24/57	

SOIL TYPE Moody LOCATION Dixon County, Nebraska silty clay loam (deep, eroded)

SOIL NOS. S-55-Nebr-26-1-(1-7) LAB. NOS. 2855-2861

**********	••••••••••••••••••••••••••••••••••••••	TELA	*************	PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	or cent)	3Al	****************	
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND			VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURA CLASS
		2-1	1.0.5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	QG2-Q <b>00</b> 2		
0-7	Alp	0.3	0,2	0.1	0.3	6.9	61.5	30.7	44.8	23.8	-	sicl
7-13	BL		-	0.1	0.3	5.2	60.9		40.3	26.0	-	sicl
	B21.	-	-	₩ _	0.3	5.1	63.1	31.5	40.1	28.3		sicl
	B22	0.1	0.1	0.1	0.5		63.1	27.7	48.7		-	sicl
30-46 46-55	B23 B3	-	-	-	0.2 0.2	7.8 8.1	65.9 67.4		53.6	20.3	-	sil
55 <b>-</b> 60	Cca	0.2	0.2	0.1	0.2	8.3	67.4	23.6	53.8 53.2	21.9 22.7	-	sil sil
<i>)</i> /-00	, ca	0,2	0.2	0.1	0,2	0.5	01.4	25.0	73.6	£2.1	•	811
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			6Ala ORÇANIC CARBON	6Bla NITRO-		EST% SALT (BUREAU CUP)	CAL CONDUC- TIVITY EC × 103		GYPSUM me./100g.	1/10	1/3	4B2 15
	1;5	1:10			C/N	CUP)	MILLIMHOS PER CM #25°C.	alent %	SOIL	ATMOS.	ATMOS.	ATMOS.
!:!			%	- %			₩23″C.			- 95		
7.8	8.0	8.3	1.52	•150	10.1			2				14.5
7.8 7.4	8.1 7.7		0.77 0.51	.074 .059	10.4 8.6							15.5 14.8
7.1	7.4		0.35	044	8.0							13.5
6.9	7.4	7.4	0.27	•						ļ		13.1
6.9	7.4		0.22					-			;	12.8
7.8	8.4	8.5	0.21					4				12.7
.1144 <b>4414</b> 14414144444			H4F1417-44644444			4226481*4.74448844444		4+111168514+1×+041	*************		**********	2466444444444444
5Ala			TABLE (		<del></del>	BASE SAT.						
CATION XCHANGE	6 <b>N</b> 2b	602b		6P2a	692a	私		4A3a Vol.		l		MOISTUR!
APACITY NH4Ac	Co	Mg	н	No	K			Wt.				SATU- RATION
MITAL	'	milliequiv	: olents per	100g. soil	<b></b>			g/cc		ĺ		76
27.3		4.2		0.1	0,5							
28.7	24.9	6,2		0.1	0.3			1.34				
27.3	22.4	6.6		0,1	0.3							
25.6	19.8	6.0		0.1	0.4			1.35				
23.5	18.8	5.0 4.6		0.2	0.4 0.4							
23.0 21.0	19.1	5.0		0.2	0.4			1.24				
		٧.٠		V.2.	J.7			<b>6</b> -T				
				,						, ,		•

Soil type: Moody silty clay loam, deep, eroded

Soil No .: S55Nebr-26-1-(1-7)

Incation: .15 mile north and 75 feet east of west quarter corner Sec. 14, TZ/N, RME, Dinon County, Mebraska.

Physiography: Gently rolling to rolling loess plain; on 800-foot long west-southwest facing 6 to 8 percent slope, about 300 feet upslope from drain.

Use: Cultivated, corn.

Callegeed here J. H Debrude H. L. Kallmoroon, R. H. Milliams, A. A. Rider, R. D. Greenswalt, T. F. Clamer and

J. S. Allen, July 1955.

Described by: B. H. Williams.

## Horizon and Mandan Lab. Number

Alm 2855

O to 7 inches. Dark grayish brown to very dark grayish brown (10YR 4/2 dry to 3/2 moist) silty clay losm; weak fine and very fine crumb structure; soft, dry; very friable, moist; calcareous, weak effer-vescence; a few fine lime concretions, limy material, washed down from eroding higher slope; abrupt lower houndary.

7 to 13 inches. Dark grayish brown to very dark grayish brown (10YR 4/2.5 dry to 3/2.5 moist) silty clay loam; weak coarse prismatic and moderate medium fine and very fine blocky structure; bard, dry; friable, moist; noncalcareous; clear smooth lower boundary.

R21 2857

2856

13 to 21 inches. Brown to dark brown (10YR 5.5/3 dry to 3.5/3 moist) silty clay loam; moderate coarse prismatic and moderate medium and coarse blocky structure; weak to moderate and nearly continuous glaze on ped surfaces; hard, dry; firm, moist; noncalcareous; clear smooth lower boundary.

B22 2858

21 to 30 inches. Pale brown to brown (10YR 6/3 dry to 4/3 moist) silty clay loam; few faint fine gray and yellowish brown mottles; moderate medium prismatic and moderate medium and coarse blocky structure; glaze on peds like in horizon above; hard, dry; firm, moist; plant roots common to many in this horizon and the ones above; noncalcareous; gradual smooth lower boundary.

**в**23 2859 30 to 46 inches. Pale brown to brown (10YR 6/3 dry to 5/3 moist) silty clay losm, near silt losm boundary; common faint fine gray and yellowish brown mottles and fine streams and fine dark brown to blacksoft iron-manganese concretions; plant roots few, old root channels and pores common; weak to moderate coarse prismatic structure; weak discontinuous glaze on ped surfaces; hard, dry; firm, moist; noncalcareous; gradual smooth lower boundary.

2860

46 to 55 inches. Very pale brown to brown (10YR 7/3 dry to 5/3 moist) silt losm; common faint fine gray, strong brown and yellowish brown mottles; weak coarse prismatic structure; slightly hard, dry; friable, moist; common prominent fine dark brown to black iron-manganese streaks and fine soft concretions; no living plant roots observed; old root channels common; noncalcareous; abrupt smooth lower boundary.

2861

55 to 60 inches. Pale yellow and yellow to olive yellow and light olive brown (2.5% 7/4 and 7/6 dry to 6/6 and 5/6 moist) silt loam; common distinct medium gray and yellowish brown mottles; massive; slightly hard, dry; friable, moist; a few distinct fine very dark brown iron-manganese streaks and soft concretions; calcareous; violent effervescence; fine streaks and seams of lime and a few hard lime concretions up to 1/2 inch in diameter.

Horizons Alp. R22 and Coa sampled for Bureau of Public Roads.

SOIL SURVEY LABORATORY Lincoln, Nebr. December 1959

SOIL TYPE Moody LOCATION Dixon County, Nebraska silty clay loam

SOIL NOS. S59Nebr-26-1-(1-8) LAB. NOS. 11370-11377

	İ	lBla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent)	3 <b>A</b> 1		
DEPTH INCHES	HORIZON	VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE \$AND 0.10-0.05	SILT 0.05-0.002	CLAY < 0,002	0.2-0.02	Q02-Q <b>0</b> 02	2A2 > 2 (<19mm)	TEXTURAL CLASS
0-7	Alp	0.1	0.2	0.7	2.2	4.2	62.8	29.8	45.5			sicl
7-10	ALŽ	0.1	0.1	0.3	0.8	2.6	63.4	32.7	38.3	28.1	_	sicl
10-13	A3	0.1	∞.1	0.1	0.4	1.8	63.9	33.7	35.9	30.0	-	sicl
13-19	B1.	<0.1	<0.1	O.la	O.3b	1.4b	64.7	33.5	33.4	32.9	-	sicl
19 <b>-31</b>	B21	<0.1	<0.1	<0.1	0.1ъ	2.2b	62.5	35.2	36.7	28.1	-	sicl
3139	B22	<0.1	<0.1	<0.1	0.3b	3.7b	63.4	32.6	41.8	25.5	-	sicl
39-46	B3	<0.1	<0.1	0.2a	0.66	7.2b	60.2	31.8	45.5	22.3	Tr.	sicl
46-60	C	<0.1	0.la	0.28	0.86	8 <b>.3</b> 6	65.2	25.4	53.3	20.7	Tr.	sil

**M**illinitri) (

Soil type: Moody silty clay loam

Soil No.: S59Nebr-26-1-(1-8)

Location: 750 feet west and 250 feet south of Center Sec. 22, T28N, RME, Dixon County, Nebraska. Northeast Nebraska Experiment Station.

Physiography: Rolling loess hills.

Relief: 50 to 100 feet.

Slope: 6 percent est - convex.
Parent material: Peorian loss.

Drainage: Well.

Permeability: Moderately slow.

Land Use: Cultivated.

Described by and date: J. V. Drew and J. A. Elder, June 25, 1959.

## Lincoln

Lab. No. Horizon Depth

11370	Alp	07"	Very dark brown (10TR 2/2 moist) silty clay loam. Weak
	P		very fine granular structure. Friable moist, slightly hard
			dry. Abundant roots. No effervescence. Abrupt smooth
			boundary.

11371 A<sub>12</sub> 7-10" Very dark brown (10YR 2/2 moist) silty clay loam. Moderate fine granular structure. Friable moist, slightly hard

dry. Abundant roots. No effervescence. Clear smooth boundary.

11372	Az	10-13"	Very dark grayish brown (10YR 3/2 moist) (10YR 4/2.5 moist
	_		crushed) silty clay loam. Moderate fine subangular blocky
			breaking to fine granular structure. Friable moist,
			slightly hard dry. No effervescence. Clear smooth boundary.

11373 B<sub>1</sub> 13-19" Dark brown (10YR 3/3 moist) (10YR 4/3 moist crushed) silty clay loam. Weak fine prismatic breaking to moderate fine subangular blocky structure. Friable moist, hard dry.

No effervescence. Clear smooth boundary.

11374 B<sub>21</sub> 19-31" Dark brown (10YR 4/3 moist) (10YR 4/3 moist crushed) silty clay loam. Weak medium prismatic breaking to moderate fine angular blocky structure. Firm moist, hard dry. A few thin discontinuous clay films on aggregates. No effervescence. Gradual smooth boundary.

11375 B<sub>22</sub> 31-39" Dark brown (10YR 4/3 moist) silty clay loam. Weak medium prismatic breaking to moderate medium and fine subangular blocky structure. Firm moist, hard dry. Thin discontinuous clay films on larger aggregates. No effervescence. Many medium distinct gray mottles and common fine distinct strong brown iron stains. Clear smooth boundary.

11376 B<sub>3</sub> 39-46" Dark brown (10YR 4/3 moist) silty clay loam. Weak medium and fine subangular blocky structure. Friable moist, slightly hard dry. Many medium distinct gray mottles. Many fine distinct strong brown and dark brown iron stains.

Slight affervescence in lower inch. Abrunt wavy boundary.

11377 C 46-60" Dark grayish brown (10YR 4/2.5 moist)\* silty clay loam. Very friable moist, soft dry. A few soft and an occasional large 1/4-3/4-inch CaCO3 concretions. Lime in pores and openings. Strong effervescence. Worm working common. Coats are

SOIL TYPE Moody LOCATION Wayne County, Nebraska silty clay loam, eroded

SOIL NOS.

354Nebr-90-2-(1-7) LAB. NOS. 2171-2177

3A1 20.3 1 21.7 24.1 2 2.9 15.0 21.7 24.4	- - -	sicl
20.3 1 21.7 3 24.1 2 2.9 15.0 21.7	- - -	sicl
21.7 3 24.1 2 2 .9 0 15.0 9 21.7	- - -	sicl
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	1/10 ATMOS. % 3a 8103 ms Ca/Mg	3a 803 ns Ca/Mg 8 2.7 2.4 1 2.4 8 2.4

Soil type: Moody silty clay loam, eroded

Soil No.: S54Nebr-96-2-(1-7)

Location: 120 feet north of south quarter corner Sec. 35, T26N, RSE, Wayne

County, Nebraska.

Topography: Slightly convex ridge top with h percent northward dip to the

ridge; rolling landscape with total relief of 80 to 100 feet.

Use. Cultivated, corn 1954. Described by: B. H. Williams

Mandan

Lab.
No. Horizon Depth

Dark grayish brown (10YR 4/1.5, dry) to very dark brown (10YR 2.5/2, moist) silty clay loam; weak fine granular structure; slightly hard, dry; friable, moist; abrupt smooth lower boundary, except slight A3 or B1 tonguing 2 or 3 inches into the next (B21) horizon.

2172 B<sub>21</sub> 7½-18" Yellowish brown (10YR 5/4, dry) to dark brown (10YR 4/3, moist) silty clay loam, with slight tonguing of darker material and numerous worm casts from the horizon above; compound weak coarse prismatic, weak medium and coarse blocky and moderate medium granular in the darker crackfilling material; hard, dry; friable, moist; gradual smooth lower boundary.

2173 B<sub>22</sub>

18-26" Yellowish brown (10YR 5/4, dry) to dark brown (10YR 3.5/3, moist) silty clay loam; compound weak coarse prismatic and moderate coarse blocky structure; hard, dry; friable, moist; slight glaze on blocky peds and some dark organic staining along vertical cleavage planes; clear smooth lower boundary.

2174 B23 26-33" Yellowish brown (10YR 5.5/4, dry) to dark yellowish brown (10YR h.5/3, moist) silty clay loam; a few faint fine gray mottles in lower 2 or 3 inches; compound weak coarse prismatic and moderate coarse blocky structure; hard, dry; friable, moist; weak glaze most structure planes; a few fine thread-like pores and channels; clear smooth lower boundary.

2175 B3 33-44" Light yellowish brown (10YR 6/4, dry) to yellowish brown (10YR 5/4, moist) silty clay loam; few faint fine gray and dark yellowish brown mottles and very dark brown iron-manganese stains; compound weak coarse prismatic and weak coarse blocky structure; soft, dry; friable, moist; numerous thread-like pores and tubes; clear smooth lower boundary.

2176 C 44-47" Light yellowish brown (10YR 6/4, dry) to yellowish brown (10YR 5/4, moist) heavy silt loam; few faint fine gray and strong brown mottles; massive; soft, dry; friable, moist; numerous fine thread-like pores; clear smooth lower boundary.

2177 C<sub>Ca</sub> 47-60" Light yellowish brown (10YR 6/4, dry) to yellowish brown (10YR 5/4, moist) silt loam; common faint fine and coarse gray and strong brown mottles and very dark brown iron-manganese stains; massive; soft, dry; friable, moist; numerous fine and medium pores and thread-like channels; gray and brown staining, somewhat concentric, around the channels; calcareous, with effervescence only on lime spots and concretions in the upper part; strong effervescence throughout in the lower part.

SOIL SURVEY LABORATORY Lincoln, Nebr. February, 1959

SOIL TYPE \*Morrill LOCATION Saunders County, Nebraska

SOIL NOS. S58Nebr-78-2-(1-8) LAB. NOS. 8422-8429

IBla PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1

DEPTH INCHES HORIZON COARSE COARSE SAND SAND SAND SILT CLAY > 2

TEXTURAL CLASS

1-0.5 0.5-0.25 0.25-0.10 0.10-0.05 0.05-0.002 < 0.002 0.2-0.02 0.02-0.002 (19mm)

0-5 Alp 1.7 5.0 4.3 10.3 8.0 46.5 22.2 48.3 13.5 Tr. 1 5-9 Al2 0.7 5.0 4.1 8.8 7.7 47.6 26.1 44.4 15.2 Tr. 1 9-12 A3 3.1 6.9 3.9 3.9 11.2 47.6 29.4 38.5 14.4 Tr. c1		0.5	2-1 1-0.5	0.3-0.23 0.23-0.	0.00.05	0.002 < 0.002	1.0 0 102-4002		
		5-9 ALD	0.7 5.0	4.1 8.8	7.7 47	.6 26.1	44.4 15.2	Tr. 1	į
		9-12 A3	3.1 6.9	3.9 3.9	11.2 41	.6 29.4	38.5 14.4	Tr. cl	İ
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Soil type: \*Morrill clay loam 858Nebr-78-2-(1-8) Soil No.:

Location: 160 feet east and 40 feet north of south quarter corner Sec. 15, T13N, R6E; approximately 2 miles north

and 4 miles west of Ceresco, Saundem County, Nebraska.

Physiography: Missected till plain (lower section Kansan till).

Relief: 40 to 50 feet.

Slope: 7 percent north facing slope.

Parent material: Mixed Kansan sands and till remnants.

Erosion: Moderate.

Drainage: Well to excessive. Permeability: Moderately slow.

land use: Corn 1958.

Described by: W. E. McKinzie and J. A. Elder.

Horizon and Lincoln Lab. Number

0 to 5 inches. Very dark grayish brown (10YR 3/2 moist) to dark grayish brown (10YR 4/2 dry) light Alp

8422 clay loam; weak fine granular; friable, moist; no effervescence; abrupt smooth boundary.

**A12** 5 to 9 inches. Very dark brown (10YR 2/2 moist) to very dark grayish brown (10YR 3/2 dry) silty clay loam; weak coarse subangular blocky to weak fine granular; friable, moist; no effervescence; worm 8423

activity transported in material from lower horizons; clear smooth boundary.

9 to 12 inches. Dark reddish brown (5YR 3/2 moist) to dark brown (7.5YR 4/2 dry) silty clay loam; A3 8424 weak coarse subangular blocky to moderate fine and medium granular; friable, moist; no effervescence;

clear wavy boundary.

12 to 19 inches. Reddish brown (5YR 4/4 moist) to reddish brown (5YR 5/4 dry) silty clay loam; weak R21 coarse subangular blocky to weak fine and medium subangular blocky; friable, moist; no effervescence; 8425

gradual smooth boundary.

19 to 28 inches. Reddish brown (5YR 4/4 moist) to reddish brown (5YR 5/4 dry) clay loam; weak coarse

prismatic to weak fine and medium blocky; firm, moist; no effervescence; gradual smooth boundary. 8426

28 to 40 inches. Yellowish red (5YR 4/6 moist) to yellowish red (5YR 5/6 dry), crushed color (5YR 8427 5/6 moist) clay loam; weak coarse prismatic to weak medium and fine subangular blocky; firm, moist; no effervescence; gradual smooth boundary.

40 to 51 inches. Reddish yellow (7.5YR 6/6 moist) to reddish yellow (7.5YR 7/6 dry), crushed color 8428 (7.5YR 5/4 moist) light clay loam; weak coarse prismatic; friable, moist; no effervescence; clear smooth boundary.

51 to 60 inches. Strong brown (7.5YR 5/6 moist) to reddish yellow (7.5YR 6/6 dry) losmy sand; massive; very friable, moist; no effervescence; large rodent burrows filled with material from horizon above. 8429

Note: Few gravels scattered throughout profile; aftonian silts present at 90 inches.

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1959

SOIL TYPE Morrill clay loam

LOCATION Saunders County, Nebraska

SOIL NOS. S58Nebr-78-4-(1-8) LAB. NOS. 8441-8448

				******************************							*******	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,
<u> </u>	į	lBla .	,	PARTI	CLE SIZ	F DISTRIB	UTION (in	mm.) (be	r cent)	<u>3A1</u>			
											2A2		ĺ
DEPTH INCHES	HORIZON	VERY	COARSE	WEDHIM	FINE	VERY FINE						TEXTURAL	
inches	FIORIZON	GMAZ	SAND	SAND	CMAR	SAND	SILT	CLAY			> 2	CLASS	
		2-1	1-0,5	0.5-0.25	0. 25-0, 10	0,10-0.95	0 05-0,002	< 0.002	0.2-0 02	Q0 <b>2-</b> Q0 <b>0</b> 2	(19mm)		
0-7	Alp	0.2	3.8	6.8	19.0	10.2	39.1	20.9	48.5	11.6	-	1	
7-9	A12	0.6	4.7	6.8	11.6	14.7	38.4	23.2	45.1	11.9	-	1	
9-12	A3	0.6	5.1	6.3	12.5	7.3	39.0	29.2	39.7	13.1	-	cl	
12-22	B21	0.6	6.1	7.1	9.8	5.7	40.4	30.3	35.9	14.4	_	cl	
22-34	B22	1.2	7.8	9.4	8.8	8.6	37•5	26.7	37.0	10.6	Tr.	1	į
34-42	B23	0.9	9.0	13.0	17.2	6.6	30.7	22.6	34.4	9.6	Tr.	1	
42-54	CJ	2.2	13.9	16.7	13.6	13.0	21.4	19.2	29.4	6.9	Tr.	sl	
54-60	C2	0.7	18.0	22.2	16.2	6.2	21.3	15.4	26.3	7.1	_	สา	

Soil type: Morrill clay loss 858Mebr-78-4-(1-8) Soil No :

Iocation: 300 feet west and 150 feet south of north quarter corner Sec. 26, Tl3N, R5E. (Straight west of south end of long shed in farmstead which is located approximately .25 mile east). Approximately 1/2 mile south and

l mile east of Valparaiso, Saunders County, Nebraska.

Physiography: Mssected till plain (lower section of Kansan till).

Relief: 40 to 50 feet.

Slope: 9 percent east facing slope.

Parent material: Mixed Kansan sands and till remnants.

Brosion: Moderate.

Drainage: Well to excessive. Permeability: Moderately slow.

Iand use: Corn 1958.

Described by: W. E. McKinzie and J. A. Elder.

Horizon and Idneoln Lab. Mumber

O to 7 inches. Very dark brown (10YR 2/2 moist) to dark brown (10YR 3/3 dry) light clay loam; weak Alp 8441 fine granular; very friable, moist; no effervescence; abrupt smooth boundary.

7 to 9 inches. Very dark brown (10YR 2/2 moist) to dark grayish brown (10YR 4/2 dry) light silty clay 419 Ahho losm; weak coarse subangular blocky to weak fine and medium granular; friable, moist; no effervescence; rodents have brought up material from lower horizons; clear smooth boundary.

9 to 12 inches. Dark brown (7.5TR 3/2 moist) to dark brown (7.5TR 4/2 dry) silty clay loam; weak coarse A3 Rhita subangular blocky to weak fine and medium granular; friable, moist; no effervescence; clear smooth boundary.

P21 8bbb 12 to 22 inches. Dark reddish brown (5YR 3/4 moist) (5YR 4/4 moist crushed) to reddish brown (5YR 5/4 dry) silty clay loam; moderate coarse prismatic to moderate fine and medium subangular blocky; firm, moist: no effervescence; gradual smooth boundary.

B22 8445 22 to 34 inches. Reddish brown (5YR 4/4 moist) to reddish brown (5YR 5/4 dry) clay loam; weak coarse prismatic to moderate fine and medium subangular blocky; firm, moist; no effervescence; thin continuous clay skins; gradual smooth boundary.

34 to 42 inches. Reddish brown (5TR 4/4 moist) to reddish brown (5TR 5/4 dry) clay loam; weak coarse BE3 prismatic to weak medium subangular blocky; firm, moist; no effervescence; thin patchy clay skins on faces of aggregates; gradual smooth boundary.

42 to 54 inches. Reddish brown (5YR 4/4 moist) to reddish brown (5YR 5/4 dry) silty clay loam; weak 8447 coarse subangular blocky; firm, moist; no effervescence; gradual smooth boundary.

54 to 60 inches. Dark brown (7.5YR 4/4 moist) to brown (7.5YR 5/4 dry) light clay loam; weak coarse 9777-19 CS subengular blocky; friable, moist; no effervescence.

SOIL SURVEY LABORATORY Lincoln, Nebr. December 1959 SOIL TYPE Nora LOCATION Dixon County, Nebraska silty clay loam

SOIL NOS. S59Nebr-26-2-(1-8) LAB. NOS. 11378-11385

		lBla		PARTI	CLE SIZ	E DISTRIB	UTION (in	man.) (pe	r cent) 3	Al	-5.5	
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 >2	TEXTURA CLASS
		2-1	1-0.5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	0.02-0.002	(<1.9mm)	
0-5	Alp	0.2	0.2	0.9	2.8	6.7	59.5	29.7	48.9	18.7	-	sicl
5-9	Al2	∞.1	0.1	0.2	0.8	5.7	60.2	33.0	46.5	19.8	-	sicl
9-13	<b>A3</b>		ರು.1	0.1	0.3	6.2	62.0	_	47.5	20.9	-	sicl
3-17	B21	Ø.1	∞.1	≪0.1	0.3	8.1	62.5	29.1	50.9	19.9	•	sicl
17 <b>-22</b> 22-36	B22 B3ca		<b>∞.1</b> 0.1b	<0.1 0.1b	0.5a 0.7b	7.la 7.6b	64.9 68.6		54.4 55.9	18.0 20.8	Tr.	sicl/s
36-50	CI		<0.1	0.1ъ	0.86	9.16	69.0		59.3	19.4	Tr.	sil
60-60	C2	0.1ь	0.1b	0.1b	1.0b	9.46	69.0	20.3	60.9	18.3	Tr.	<b>s1</b> 1.
i kest franchistoria	Duamentine	i Adresamenten	#400+111 H11004	04014141415117774C	* 1 1	984 198 <del>1 ) 1</del> 448988 <del>84</del> 8 \$4488		waterperengen	*********	***************************************		
-5	PH			ANIC MA	TTER	Free	ELECTRI- CAL	6Ela	i 1 10010101011011011	MOIST	URE TE	
8Cla	1		6Ala	6Bla		Iron Fe <sub>2</sub> 03%	CAL CONDUC- TIVITY		GYPSUM me./100g.	1/10	1/3	4B2 15
	1;5	1:10	ORGANIC CARBON	GEN	C/N	16503%	MILLIMHOS	aquiv- alam	SOIL	ATMOS.		ATMOS
1:1			*	*		6Cla	PEB-EM	*		*	%	\$
6.1	ŧ	•	1.97	0.174	11.3	1.3		į				12.5
6.5	Í	ļ		0.143	10.6	1.5		Q.	•			14.7
6.8		1		0.098	10	1.5		đ			•	13.8
7.0	į	ŧ		0.073	9	1.5	<u> </u>	44	]			12.9 12.6
7.0 8.0	Į			0.064	8	1.5 1.3						10.8
8.2		ļ	0.14	0.000		1.3	•	9	•		İ	10.3
8.2		•	0.12	ļ	•	1.4	:	8	ĺ			9.9
5Ala		EYTDAC	TABLE	i CATION!	 	BASE	Base	Sum	Sun	Ca/l/g		<u> </u>
		602ъ	Témla	6P2a	692a	SAT.	Sat. %	Ext.	Ext.	007.5		MOISTU
CATION XCHANGE APACITY	Co	Mg	н	No	K	NH <sub>L</sub> AC EXCH.	1	Bases	Cat-			SATU-
NH <sub>1</sub> Ac		1	ratents per	ì	1	5C1	Cations		ions 5A3a	  803	ļ	RATIO
				1	1	[	5¢3.	5Rla				† <i>7</i>
21.8	14.7	4.9	7.0	Ø.1	0.9	94	74	20.5		3.0	İ	İ
25.0	17.5	5.8	5.8	0.1	0.5	96 104	80 85	23.9	29.7 28.3		1	1
23.0 22.0	17.7	5.8 5.4	4.3 3.5	0.1	0.4	105	85 87	23.1	26.6	3.0 3.2	İ	1
21.3	17.3	5.3	3.3	0.1	0.4	108	88	23.1	26.4	3.3		
17.9		5.2	Ø.i	0.1	0.4				]	]	İ	1
17.0		6.7	<b>Ø.1</b>	0.1		•					1	
16.9	,	7.7	<b>0.1</b>	0.2	0.4		1			Į	Ţ	Ì
						E. V. B. D. T. F. C. B. D. F. C. B. D. T. D. T. C. B. D. T. C. B. D. T. C. B. D. T. C. B. D. T. C. B. D. T. C. B. D. T. C. B. D. T. C. B. D. T. C. B. D. T. C. B. D. T. C. B. D. T. C. B. D. T. C. B. D. T. C. B. D. T. D. T. C. B. D. T.	<b>*</b>			rappyri needon needon needon needon needon needon needon needon needon needon needon needon needon needon need		
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. Fev	(Fe-M	?) co	er.	<u> </u>			(CaCO37)				1	

Soil type: Nora silty clay loam Soil No.: \$59Nebr-26-2-(1-8)

Location: 950 feet west and 200 feet south of Center Sec. 22, T28N, R4E, Dixon County, Nebraska. Northeast Nebraska Experiment Station.

Physiography: Rolling loess hills.

Relief: 50 to 100 feet. Slope: 6 percent southwest, convex. Parent material: Peorian loess.

Drainage: Well.

Permeability: Moderately slow.

Land use: Cultivated.

Described by and date: J. V. Drew, and J. A. Elder, June 25, 1959.

## Lincoln

Lab. No. Horizon Depth

11378	Alp	0-5"	Very dark brown (10YR 2/2 moist) silty clay loam. Weak very fine granular structure. Friable moist, slightly hard dry. Abundant roots. No effervescence. Abrupt smooth boundary.
11379	A <sub>12</sub>	5-9#	Very dark grayish brown (10YR 3/2 moist) (crushed, 10YR 3/3 moist) silty clay loam. Moderate fine granular structure. Friable moist, slightly hard dry. No effervescence. Clear smooth boundary.
11380	A3	9-13"	Very dark grayish brown (10YR 3/2 moist) (crushed, 10YR 4/3 moist) silty clsy loam. Moderate fine and very fine granular structure. Friable moist, slightly hard dry. No effervescence. Clear smooth boundary.
11381	B <sub>21</sub>	`13 <b>-</b> 17"	Dark brown (10YR 4/3 moist, crushes to 10YR 4/4 moist) silty clay loam. Weak coarse and medium subangular blocky breaking to weak fine subangular blocky structure. Friable moist, hard dry. No effervescence. Clear smooth boundary.
11382	B <sub>22</sub>	17-22#	Dark brown (10YR 4/3 moist, crushes to 10YR 4/4 moist) silty clay loam. Weak medium subangular blocky structure. Friable moist, hard dry. No effervescence. Abrupt wavy boundary.

Dark yellowish-brown (10YR 4/4 moist, same color when 1B 83 22-36" crushed) silty clay loam. Weak medium subangular blocky structure. Friable moist, slightly hard dry. Few medium distinct gray mottles. Common faint yellowish brown coarse iron stains. Violent effervescence, numerous hard dense concretions 1/8 to 3/8" in diameter. Oradual smooth boundary.

11384 C, 36-50" Yellowish brown (10YR 5/h moist)\* silty clay loam. Weak coarse prismatic breaking to weak fine and medium subangular blocky structure. Very friable moist, soft dry. Few prominent reddish brown stains, common medium distinct gray mottles. Common faint yellowish brown iron stains. Violent effervescence, scattered hard lime concretions. Gradual smooth boundary.

11385 50-60" Same as above except slightly softer consistency, dry. Fewer lime concretions and more reddish brown ironmanganese stains.

<sup>\*</sup> Tending toward 2.5Y hue.

SOIL SURVEY LABORATORY Lincoln, Nebr. 5/24/57

SOIL TYPE Nora LOCATION Dixon County, Nebraska silty clay loam

SOIL NOS. <u>8-55-Nebr-26-2-(1-6)</u> LAB. NOS. <u>2862-2867</u>

***************************************		IBla		PARTI	CLE SIZ	E DISTRIB	UTION (in		r cont) S	Al.	**************	111111111111111111111111111111111111111
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY Fine Sand	SILT	CLAY			2A2 > 2	TEXTURAL CLASS
		2-1	1-0.5	0.5-0.25	0. 25-0. 10		0.05-0.002			002-0002		
0-6	Apo	0.5	0.5	0.2	0.3	6.4	66.2	25.9	49.5	23.3	-	sil
6-14	B2lca	0.5	0.2	0.1	0.3	5.1	69.6	24.2	49.2	25.7	-	sil
14-23	B22ca	0.4	0.2	0.1	0.3	6.2	68.5	24.3	50 <b>.6</b>	24.3	-	sil
23-32	B23ca	0.1	0.2	0.1	0.3	4.5	69.5	25.3	50.0	24.2	-	sil
32-40	Cca	0.2	0.1	-	0.1	4.5	70.5	24.6	50.3	24.8	-	sil
40-60	C	0.1	0.1	-	0.2	4.6	69.9	25.1	48.7	26.0	-	sil
										1846224002274***		*****************
	рН 8С	la.	ORG	ANIC MA	TTER		ELECTRI- CAL	6Ela		MOIST	TURE TE	NSIONS
	1,5		6Ala Organic Carbon	NITRO-	C/N	EST% SALT (BUREAU CUP)	CONDUC- TIVITY EC × 103 MILLIMHOS	equiv-	GYPSUM me./100g. SOIL	1/10 AŢMOS.	1/3 ATMOS.	4B2 15 ATMOS.
1:1			%	75			PER CM 925°C.	. %		7.	*5	
8.0	8.4		1.08	.113	9.6			9				12.3
8.0	8.5	8.7	0.48	-054	8.9		•	11				11.6
8.1	8.5	8.7	0.35	.040	8,8	Į	•	10	į	i i	l	11.8

Soil type: Nora silty clay loam Soil No.: 855Mebr-26-2-(1-6)

Location: .15 mile north and 175 feet east of west quarter corner Sec. 14, TZ'N, R+E, Dixon County, Nebraska; about

100 fest upslope from site of profile S55Mebr-26-1.
Physiography: Cently rolling to rolling loss plain; near middle of an 800-foot long west-southwest facing slope.

Use: Cultivated, corn.

Collected by: D. W. DeMoude, H. L. Kollmorgen, B. H. Williams, J. A. Elder, R. D. Greenawalt, T. F. Clapper and J. S. Allen, July 1955.

Described by: B. H. Williams.

Horizon and Mandan Lab. Number

2864

B23ca

2865

Cca

2866

ARREST TURN - 144 LA ARRELA Ù

cence; a few hard small concretions; abrupt smooth lower boundary. This layer consists mainly of B horizon material in which some organic matter has been incorporated through tillage.

R2lca 6 to 14 inches. Light yellowish brown to clive brown (2.5Y 6/3 dry to 4/3 moist) silty clay loam; 2863 few faint fine gray, yellowish brown and strong brown mottles; weak to moderate medium prismatic and weak coarse and medium blocky structure; calcareous; thin seams and streaks of segregated soft lime and fairly abundant hard concretions 2 to 5 mm. in diameter; violent effervescence; clear smooth lower boundary.

> 14 to 23 inches. Light yellowish brown to clive brown (2.5Y 6/4 dry to 4/4 moist) silty clay loam; common distinct fine and medium gray and yellowish brown mottles and a few very fine soft iron-manganese concretions; weak medium prismatic and medium and fine blocky structure; slightly hard, dry; friable, moist; plant roots common to many in this horizon and the ones above; calcareous; violent effervescence; abundant hard lime concretions 2 to 4 mm. in diameter; gradual wavy lower boundary.

23 to 32 inches. Light yellowish brown to light olive brown (2.5Y 6/4 dry to 5/4 moist) silt loam; many prominent medium and fine gray, yellowish brown and strong brown mottles; weak coarse prismatic and weak medium subangular blocky; slightly hard, dry; friable, moist; a few living plant roots, old root channels common; calcareous; violent effervescence; fewer lime concretions than in horizon above; gradual wavy lower boundary.

32 to 40 inches. Light yellowish brown to light olive brown (2.5Y 6/4 dry to 5/4 moist) silt loam; common distinct medium gray and yellowish brown mottles and dark brown to black soft iron-manganese concretions; weak coarse prismatic structure; slightly hard, dry; friable, moist; many root channels; calcareous: violent effervescence: a few hard lime concretions.

	SOIL	SURVEY	LABORA	TORYLi	ncoln, Ne	br.	. <u></u>	April	1959
	SOIL	TYPE Par	wnee ay loam	LOC.	ATION	Pawnee Co	nmty, Nebr	aska	-disconness and on dairy
	SOIL		\$58Nebr-67-					.38	
, <del>'  </del>	DEPTH	F	PART	1	1	(in mam.) (per e	ent) 3Al	242	TEXTURAL CONTRACT
		F							
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Iocation: 0.2 miles west and 160 feet south of center of Sec. 19, T2N, R12E, located about 2 miles east and 1 mile north of Pawnee City, Pawnee County, Nebraska.

Date Sampled: September 11, 1958.

Collectors: R. Jordan, J. Edder, R. Greenawalt. Use: Cultivated (corn 1958). Climate: Average annual precipitation 31 inches, average annual temperature 53° F. Parent Material: Glacial till. Physiography: Glacial upland (loess-covered ridge tops). Slope: 6 percent west. 558Nebr-67-1-(1-7) Soil No.: Lincoln Lab. No. Horizon 0-7 inches. Dark grayish brown (10YR 4/2 dry) to very dark brown (10YR 2/2 moist) clay loam; 9132 Alp moderate fine and very fine granular structure; slightly hard dry, friable moist; noncalcareous; abrupt smooth lover boundary. 7-11 inches. Dark grayish brown (10YR 4/2 dry) to very dark gray (10YR 3/1 moist) clay loam; 9133 A12 moderate medium and fine granular structure; slightly hard dry, friable moist; noncalcareous; gradual smooth lower boundary. 11-17 inches. Dark brown (7.5YR 4/2 dry) to dark brown (10YR 3/3 moist) clay; a few fine prominent 9134 ΑB olive brown mottles; moderate medium and fine blocky structure; hard dry, firm moist; noncalcareous; gradual amooth lower boundary. 17-28 inches. Dark yellowish brown (10YR 4/4 dry) to dark yellowish brown (10YR 3/4 moist) clay; moderate medium and fine blocky structure; the sides of the blocks are slicked and at a  $45^{\circ}$  angle; hard dry, firm moist; noncalcareous; gradual smooth lower boundary. B21 9135 9136 B22 28-38 inches. Yellowish brown (10YR 5/6 dry) to dark yellowish brown (10YR 4/4 moist) clay with a few gravels and many medium distinct grayish brown mottles; weak coarse blocky structure; the sides of the blocks are slicked and at a 45° angle; very hard dry, very firm moist; noncalcareous; gradual smooth lower boundary. 9137 38-48 inches. Mottled 50% light brownish gray (2.5Y 6/2 dry), 50% yellowish brown (10YR 5/8 dry) to 50% grayish brown (2.5Y 5/2) and 50% yellowish brown (10YR 5/6 moist) clay; weak medium blocky structure; very hard dry, very firm moist; weakly calcareous; with a few soft lime concretions; gradual smooth lower boundary. 9138 48-63 inches. Light brownish gray (2.5Y 6/2 dry) to grayish brown (2.5Y 5/2 moist) clay; many C coarse distinct yellowish brown mottles; moderate medium and coarse blocky structure; very hard

Note: Dark material has been carried down into the AB and B21 horizons in cracks and cleavage plains from the surface. The dry colors were crushed. Many dark coatings and concentrations of dark material, probably iron and manganese, are present in the C horizon. Horizons Alp, B21 and C were sampled for Bureau of Public Roads.

dry, firm moist; disseminated lime with large to small lime masses.

SOIL SURVEY LABORATORY Lincoln, Nebr. April 1959

SOIL TYPE Paymee LOCATION Paymee County, Nebreska

clay loam

SOIL NOS. S58Nebr-67-3-(1-8) LAB. NOS. 9148-9155

		lBla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (p4	r cent) _	<u> </u>		
DEPTH INCHES	HORIZON	VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0. 25-0, 10	VERY FINE SAND 0.10-0,05	\$ILT 0.05-0.002	CLAY < 0.002	0. 2-0.02	002 0002	2A2 > 2 <19mm	TEXTURAL CLASS
0-6	Alp	1.2a	4.la	5.6a	ઈ.9a.	4.9a	50.0	25.3	37.7	21.8	Tr.	811/1
6-10	Al2	2.3a	4.la	4.7a	7.0a	4.2a	45.5	32.2	31.7	21.6	Tr.	cl
10-14	AB	2.2a	3.6a	4.0a	6.5a	4.3a	42.7	36.7	29.0	21.3	Tr.	cl
14-24	B21	2.la	4.1a	3.5a	6.la	3.8a	32.7	47.7	22.8	16.6	Tr.	C
24-32	B22	4.3a	4.2a	4.2a	7.5a	5.0a	29.5	45.3	22.7	15.4	<b>1</b> 4	c
32-45	B23	3.26	5.2b	5.2ъ	8.9b	5.8₀	30.0	41.7	23.7	16.2	3	C
45-53	B3	2.20	4.8b	5.1b	9.86	6.50	30.6	41.0	25.0	16.6	Tr.	c
53-63	C	2.96	4.50	5.4b	9.9b	7.0b	31.8	38.5	26.6	16.9	Tr.	el

Soil Type: Pawnee clay losm Classification: Brunisem

Location: 0.3 miles west and 350 feet south of NE corner Sec. 2, T2N, RllE, about 4 miles north of Pawnee City,

Paynee County, Nebraska.

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Date Sampled: September 12, 1958. Collectors: R. Jordan, R. Greenawalt.

Use: Cultivated (wheat 1958).

Climate: Average annual precipitation 31 inches; average annual temperature 53° F.

Parent Material: Glacial till.

Physiography: Glacial upland (loess-covered ridge tops).

Slope: 6 percent west.

Soil No.: S58Nebr-67-3-(1-8)

Lincoln

Lab. No. Horizon

0-6 inches. Dark grayish brown (10YR 4/2 dry) to very dark brown (10YR 2/2 moist) clay loam; 9148 Alp moderate fine and very fine granular structure; slightly hard dry, friable moist; noncalcareous; abrupt smooth lower boundary.

6-10 inches. Very dark grayish brown (10YR 3/2 dry) to very dark brown (10YR 2/2 moist) clay loam; 9149 A12 moderate medium granular structure; slightly hard dry, friable moist; noncalcareous; clear smooth lower boundary.

10-14 inches. Dark yellowish brown (10YR 3/4 dry) to dark brown (10YR 3/3 moist) clay with a few fine prominent dark red mottles; moderate medium and fine blocky structure; hard dry, friable moist; 9150 AB noncalcareous: gradual smooth lower boundary.

9151 B21 14-24 inches. Dark brown (10YR 3/4 dry) and dark brown (10YR 3/4 moist) clay with a few gravels; moderate coarse and medium blocky structure; the sides of the blocks are slicked and at a 45° angle; hard dry, firm moist; noncalcareous; gradual smooth lower boundary.

24-32 inches. Dark yellowish brown (10YR 4/4 dry) and dark brown (10YR 4/3 moist) clay with a few 9152 B22 gravels; weak coarse blocky structure; the sides of the blocks are slicked at a 45° angle; very hard dry, very firm moist; noncalcareous; gradual smooth lower boundary.

32-45 inches. Dark yellowish brown (10YR 4/4 dry) to yellowish brown (10YR 5/6 moist) clay with many medium distinct weak red mottles; weak coarse blocky structure; very hard dry, very firm 9153 B23

ΪΠ  SOIL TYPE Rosebud silt loam, deep LCCATION Kimball County, Nebraska

SOIL NOS. <u>\$57Nebr-53-1-(1-8)</u> LAB. NOS. <u>5795-5802</u>

		l.Bla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent)	3 <b>A</b> l		
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 >2	TEXTUR CLASS
		2-1	1.0.5	0.5-0.25	0 25-0 10	0 10-0.05	0.05-0.002	< 0 002	0.2-0.02	Ø92- <b>Ø99</b> 2	(<19mm	
ე-6	Alp	4.5	<b>6.</b> 3	4.2	5.6	16.1	43.9	18.9	45.3	17.5	5	1
6-8	Al2	5.6	6.9	4.0	5.6	15.0	43.5	19.4	43.9	17.3	5	1
8-11	Bl	4.1	7.1	4.3	5.5	11.0	40.6	26.5	39.2	15.9	3	1
11-20	B2	1.3	2.8	2.4	3.4	12.5	44.4	33.2		16.4	-	cl
20-23	ВЗса	0.8a	2.2b	2.40	3.7₀	15.6b	46.7	28.6	46.9	17.7	Tr.	cl
23-28	Cl	1.0a	3.6b	3.7b	5.9ъ	19.30	45.3	21.2	51.2	16.9	Tr.	1
28-34	DI		10.9ъ		12.1b	18.96	29.7	14.4	44.8	10.3	3	fsl
34-45	<b>D</b> 2	35.7₽	18.46	8.16	6.7ъ	6.15	8.1	16.9	12.6	4.8	46	cosl
							5\ 56¥01	<b>4177</b>	<u> </u>			
Jan.	pH	6	, ,	INIC MA		8A2	ELECTRI-	6ELa		WO12	URE TE	N310N3
RCTP	301a	8Cla	6Ala			ESTS SALT	CONDUC-	CoCO3	GYPSUM	1/10	1/3	15
Satu-	1:1		ORGANIC CARBON		C/N	(BUREAU CUP)	EC - 103	equiv-	me./100g. 50H.	ATMOS.		ATMO
rated	1:7		۳.	4.			SER CM BALA	*		7.	<b>T.</b>	
<u>Paste</u>	7.6	0 1			11.6	<0.20		-		·-· ~	~	0 /
7.1	7.6	8.1	1.27 1.20	.109	11.8	<0.20	1 1					9.0
6.9	7.3	7.7	0.65	.064	10.2	<0.20	ا ذ ا			٠.		12.0
6.6	7.3	7.7 8.0	0.52	.060	8.7	<0.20		_				16.
6.7	7.6			.091	8.1	<0.20	ا شا	9				15.
7.6	8.3	9.0	0.74	.038		<0.20	1 - 3	12				12.
7.7	8.5 8.7	9.4	0.35	.050	۶.۶	<0.20	1 ** * * * * * * * * * * * * * * * * *	8				7.
7•9 <b>7•</b> 9	8.8	9.3	0.05			<0.20		8				8.8
				and and	cña.	ETC.	SALSATU	7.00	EVE016	7 601	4A3a	8.
5Ala				CATIONS	, , , , , , , , , ,	502			EVIKAL	1 300	1 -	MOISTU
CATION (CHANGE	6 <b>N2b</b>	602ъ	6Hla	6P2a,	6 <b>92</b> a		6Pla	691a			Vol	SATU
APACITY	Co	Mo	H	No	K	EXCH.	No	K			Wt. g/cc	RATIC
44.	ļ	<b>m: lileq</b> uiv	elems per	100g, soil	·	No S	<del></del>	- millianui	veleus ~	Item	R/cc	<b>%</b>
16.8	13.3	2.1	4.7	-	2.1	-	0.2	1.5				39.0
16.6	12.1		4.3	-	1.9	_	0.3	1.0				39.4
19.1	12.9		3.2	-	2.0	-	0.4	0.8				45.0
26.3	17.2	7.2	2.8	0.2	2.8	1	0.5	0.8	ł	ļ	1.40	
23.8	, _	·		0.3	3.0	1	1.0	1.2	Ī	1		53-
18.6				0.4	2.7	2	1.5	1.2	•	İ	1.34	44.1
13.3			•	0.5	2.i	3	2.8	1.2			1.40	31.2
13.3			•	0.8	2.0	5	4.6	1.1	Ī		ļ	26.
	L. a. a				: <b>i</b>				İ		•	:
a. F	ew Cac	ha com	er.		1 .		I	l	:	į		1

Soil type: Rosebud silt loam, deep Location: Kimball County, Nebraska. 420 feet N and 0.15 mile E of SW corner, Sec. 9, Tl3N, R53W. About 9 miles

S and 4 miles E of Dix, Nebraska.

Topography: About 1 percent southwest facing slope on a gently undulating losss-covered Tertiary plain. Cultivated: Fallow, 1957.

Described by: Ross D. Greenswalt and Bill McKinzie.

S57Nebr-53-1-(1-8) Soil No.:

Lincoln

Lab. No. Horizon 0-6 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam; 5795 Alp weak fine granular structure; very friable, moist; abrupt smooth lower boundary.

6-8 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) loam; weak 5796 A12 coarse subangular blocky structure; friable, moist; clear smooth lower boundary.

8-11 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) light silty 5797 R1 clay loam; compound prismatic and weak medium subangular blocky structure; firm, moist; abrupt smooth lower boundary. Broken clay skins on both vertical and horizontal faces.

11-20 inches. Pale brown (10YR 6/3 dry) to dark brown (10YR 3/3 moist) silty clay loam; compound weak coarse prismatic and moderate fine and medium subangular blocky structure; firm, moist; clear smooth lower boundary; continuous clay skins in both vertical and horizontal faces. 5798 B2

5799 ВЗса 20-23 inches. Hight brownish gray (10YR 6/2.5 dry) to grayish brown (10YR 5/2.5 moist) light silty clay loam; weak coarse subangular blocky; friable, moist; strong effervescence; clear smooth lower boundary.

23-28 inches. Light gray (10YR 7/2 dry) to light brownish gray (10YR 6/2.5 moist) silt losm; weak 5800 CI. medium subangular blocky structure; friable, moist; violent effervescence, disseminated lime present in root channels and along structural faces; clear smooth lower boundary.

28-34 inches. Light gray (10YR 7/2 dry) to brown (10YR 5.5/3 moist) fine sandy loam; massive structure; friable, moist; violent effervescence; disseminated lime present in root channels. 5801 m

5802 112 34-45 inches. Pink (7.5YR 7/4 dry) to yellowish brown (10YR 5/4 moist) weathered Tertiary silts with high proportion of granitic gravel and sandy limestone fragments.

Note: Krotovinss 1-2 inches in dismeter present through all horizons that are with dark colored material from sur-

face horizons. Horizons Alp, B2 and C1 were sampled for the Bureau of Public Roads.

loam, deep

SOIL TYPE Rosebud LOCATION Kimball County, Nebraska

SOIL NOS. S57Nebr-53-2-(1-7) LAB. NOS. 5803-5809

Alp Bl B2 B3ca C1 D1	2.1 8.4 8.1 3.2 1.4 1.4b 4.9b	COARSE SAND 1.9.5 10.2a 11.8a 7.6a 5.7a 5.6c	MEDIUM SAND 0.5-0.25 6.9a 7.2a 5.6a	FINE SAND 0.25-0.10 9.28 9.08	VERY FINE SAND 0.10-0.05	UTION (in SILT 0.05-0.002	CLAY		•	2A2 > 2	TEXTURA CLASS
B1 B2 B3ca C1 D1	8.4 8.1 3.2 1.4 1.45 4.96	10.2a 11.8a 7.6a 5.7a 5.6c	6.9a 7.2a 5.6a	9.2a 9.0a		0.05-0.002					
B1 B2 B3ca C1 D1	8.1 3.2 1.4 1.4b 4.9b	11.8a 7.6a 5.7a 5.6c	7.2a 5.6a	9.0a	16.3a		< 0.002	0.2-0.02	007-0002		
B2 B3ca C1 D1	3.2 1.4 1.4b 4.9b	7.6a 5.7a 5.6c	5.6a			33.0	16.0	41.7	11.9	3	fsl
B3ca C1 D1	1.4 1.4b 4.9b	5.7a 5.6c	5.6a		13.3a	30.0	20.6	36.3		2	1
Cl Dl	1.4b 4.9b	5.7a 5.6c		8.3a		33.4	25.5		11.8	;	1
Cl Dl	4.96	, ,	7 1 00		19.6a	35.1	24.2	47.2	12.5		1
מם ומ	4.96	, ,		11.8c	22.7c	32.6	20.4			Tr.	1
D2	45.2b	13.2ci		15.82	19.6c	23.0	13.7	41.9	:	2	fal
		31.8c			1.2c	1.9	10.3				lcos
i	_		_				_				
pН		ORGA	NIC MA	TER	8A2	ELECTRI-	6Fla	· · · · · · · · · · · · · · · · · · ·	MOIST	URE TE	NSIONS
	8c1a				EST'S	CAL CONDUC-					482
	-	:			SALT	TIVITY		GYPSUM	1/10	1/3	15
7 - 7	1:10	CARBON	GEN	C/N	CUP)	MILLIMHUS	alent	SOIL			ATMOS.
i		- 5	75			BALA	*		×	*	- 15
7.9	8.3	1.00	.377	13.0	<0.20	; v.9	-				7.6
	- 1	0.52			<0.20		-				9.8
,			. 56			0.6	-				11.6
1 - 1		:		1 1:		0.8	5		ľ		11.7
:	- 1	,				0.8	12				10.7
:		;					8				6.9
				ļ		1.0	7				5.7
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ONED	محم	UILUS	O1LG	Cupaca		~					AT SATU-
Co	Mg	н	No	K	EXCH.	Ne	K				RATION
	: viupeiliie	: plents per	100g. soil		Ne S		. millimavi	volents pe	r 199r —	K/ GG	₹.
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14.0	4.0	3.2			-					1.47	45.3
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w emc	ooth b	lack c	oner. (	Fe-Mn)	•						
w Cal	103 col	ucr.	: اک مواد		noth his	ak cana	. (The J	Mo.).			į
w CBL	vog co	cr.,	TRO I	EM RUM	OTH OTS	CE COUC					
	8Cla 1:1 7.9 7.7 7.5 8.3 8.5 8.7 8.8 12.7 14.6	8Cla 8Cla 1:1 1:10  7.9 8.3 7.7 7.9 7.5 8.0 8.3 8.9 8.5 9.2 8.7 9.4 8.8 9.3  EXTRAC  EXTRAC  ONZO 13.6 1.3 12.7 2.8 14.6 4.6	8Cla 8Cla CAla 1:1 1:10 CARBOT  7.9 8.3 1.00 7.7 7.9 0.52 7.5 8.0 0.53 8.3 8.9 0.62 8.5 9.2 0.33 8.7 9.4 0.16 8.8 9.3 0.07  EXTRACTABLE 6 6025 6Hla  co Mg H  13.6 1.3 1.6 12.7 2.8 2.4 14.6 4.6 3.2  w empoth black co w Calog concr.	8Cla 8Cla CAla SBla ORGANIC NITRO-CARBON GEN  7.9 8.3 1.0 .077  7.7 7.9 0.52 .048  7.5 8.0 0.53 .056  8.3 8.9 0.62 .068  8.5 9.2 0.33 .030  8.7 9.4 0.16  8.8 9.3 0.07  EXTRACTABLE CATIONS OR CONTROL OR CONTROL OR CONTROL OR CONTROL OR CONTROL OR CONTROL OR CALO CONTROL	8Cla 8Cla CAla 6Bla 7.9 8.3 1.0 0.77 13.0 7.7 7.9 0.52 .048 10.8 7.5 8.0 0.53 .056 9.5 8.3 8.9 0.62 .068 9.1 8.5 9.2 0.33 .030 11.0 8.7 9.4 0.16 8.8 9.3 0.07	8Cla 8Cla CAla OBla SATT SALT SALT SALT SALT SALT SALT SALT	8Cla 8Cla OAla OBla C/N SALT CONDUCTIVITY OF CARBOT GEN C/N (BUREAU EC. 103 MILLIMHOS PER 103 MILLIMHO	SCIA   SCIA   CAIA   OBLA   CANDUCTONDUCTOR   CONDUCTOR   CARBON	SCIA   SCIA   CAIA   OBIA   CANDON   CARBON	SCIa   SCIa   GAIa   GBIa   CAN   GEN   CAN	SCIa   SCIa   GAIa   GAIa   GAIa   GAIa   GAIa   GAIa   GAIA

Soil type: Rosebud loam, deep
Location: Kimball County, Rebraska. 0.23 mile N of SE corner, Sec. 27, T14N, R54W, and 75 feet NW 4th light pole N,
SE corner Sec. 27, T14N, R54W. About 6 miles south of Dix, Nebraska.

Theorem very sentle north facing slone on a sently undulating losss-covered Tertiary plain.

i		d by: Ro	now, 1957. Oss D. Greenswalt and Bill McKinzie. Nebr-53-2-(1-7)
-	ab.No.	Horizon	
	5803	Alp	0-6 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) loam; weak fine granular; very friable moist; abrupt smooth lower boundary.
;	5804	B1.	6-10 inches. Grayish brown (10YR 5/2 dry) to dark brown (10YR 3/3 moist) losm; weak coarse sub- angular blocky structure; friable, moist; clear smooth lower boundary; broken clay skins present on vertical faces.
	5805	B2	10-20 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2.5 moist) silty clay loss; compound weak coarse prismatic and moderate fine and medium subangular blocky structure; firm, moist; clear smooth lower boundary; continuous clay skins on both vertical and horizontal faces.
	5806	ВЗса	20-23 inches. Light brownish gray (10YR 6/2 dry) to dark grayish brown (10YR 4/2 moist) heavy

5807	CI.	23-30 inches. Light gray (10YR 7/2 dry) to light brownish gray (10YR 6/2 moist) silt loam; weak medium and coarse subangular blocky structure; very friable, moist; violent effervescence; disseminated lime present in root channels and on face of aggregates.
5808	m	30-37 inches. Light gray (10YR 7/2 dry) to brown (10YR 5/3 moist) fine sandy loam; massive structure; very friable, moist; violent effervescence; abrupt wavy lower boundary.
5809	D2	37-45 inches. Pink (7.5YR 7/4 dry) to light brown (7.5YR 6/4 moist) weathered Tertiary silts with high proportion of granitic gravel and limy sandstone fragments.

Note: Few coarse sand and fine gravels present throughout profile. Horizons Alp, B2 and C1 were sampled for the Bureau of Public Roads.

	SOIL	SURVEY	LABORA	TORY 1	incoln,	Nebr	4/7/58		****
	SOIL	TYPE Rose	bud loam, modern	LOCA	ATION	Kimball (	County, Ne	oraska	m
		Nos.	S57Nebr-53-						*****
4	DEPTH	IBIA VERY CUARSE	PARTI	ICLE SIZE DIST	PIBUTION	in mm.) (per	ent) 3A1	2A2 TEXTUR	į
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Dark									

Soil type: Rosebud silt loam, moderately deep

Location: Kimball County, Nebraska. 720 feet east and 135 feet north of S1/4 corner Sec. 4, T13N, R55W. About 8 miles south and 1.5 miles east of Kimball, Nebraska.

Topography: About 1 percent slope in a gently undulating loss-covered weathered Tertiary plain. Cultivated: Fallow, 1957.

Described by: Ross D. Greenawalt and Bill McKinzie.

Soil No .: \$57Nebr-53-5-(1-7)

Lincoln

LAD.NO.	Horizon	
5828	Alp	0-4 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silt loam;
		wast fine committee year frights moist, shown mooth lower houndary

5829 В 4-11 inches. Brown (10YR 5/3 dry) to dark brown (10YR 3.5/3 moist) silty clay loam; compound weak coarse prismatic and moderate fine and medium subangular blocky structure; firm, moist; clear smooth lower boundary; numerous 10YR 3/2 moist worm casts about 5 mm. in diameter. Continuous clay skins on vertical faces. Broken clay skins on horizontal faces.

11-15 inches. Very pale brown (10YR 7/3 dry) to pale brown (10YR 6/3 moist) silt loam; compound 5830 Bea weak coarse subangular blocky and weak medium subangular blocky structure; very friable, moist; violent effervescence; clear smooth lower boundary; few small gravels present.

5831 C 15-19 inches. Very pale brown (10YR 7/3 dry) to brown (10YR 5/3 moist) loam; weak coarse subangular blocky; very friable, moist; violent effervescence; clear smooth lower boundary.

19-23 inches. Very pale brown (10YR 7/3 dry) to light yellowish brown (10YR 6/4 moist) sandy loam; 5832 DJ. massive structure; very friable, moist; violent effervescence; gradual smooth lower boundary; scattered lime-covered gravels and sandstone fragments.

5833 122 23-30 inches. Very pale brown (10YR 7/3 dry) to light yellowish brown (10YR 6/4 moist) gravelly sandy loam; massive structure; violent effervescence; abrupt smooth lower boundary. Horizon consists of considerable lime-covered gravels and calcareous sandstone fragments. Ten percent of horizon consists of gravels over 3/4 inch in diameter.

Semiconsolidated Tertiary.

Note: Horizons Alp, B and M were sampled for the Bureau of Public Roads.

	SOIL	SURVEY	LABORAT	TORY	ncoln, Neb	r. 4/7	/58	mp4 to 1 to 1 page 1 mp4 - page 1 page 1
	SOIL	TYPE Ros	ebud m, mod. deep	LOCAT	LION KI	ball Count	y, Nebrasks	***************************************
				6-(1-4)				
	l i	f	PARTI	CLE SIZE DISTRI	BUTION (in my	.) (per cent)	3A1 2A2	
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1 <u>10.7 cm</u>								
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						<del>-</del> -7	<b>.</b>	

Soil type: Rosebud losm, moderately deep Location: Kimball County. Nebrasks. 0.35 mile east SW corner (100 feet north center of road and 35 feet east of

Topography: Three to four percent south facing slope in weathered Tertiary sands and silts on the Tertiary plains. Cultivated: Fallow, 1957.

Described by: Ross D. Greenawalt and Bill McKinzie.

Soil No.: S57Nebr-53-6-(1-4)

Lincoln

Lab. No. Horizon

0-7 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) loam; weak fine granular; very friable, moist; abrupt smooth lower boundary. 5834 Αlp

7-15 inches. Light gray (10YR 7/2 dry) to grayish brown (10YR 5/2 moist) silt loam; compound weak coarse prismatic and weak medium subangular blocky structure; very friable, moist; violent effer-5835 Bca

vescence: clear smooth lower boundary: few warm casts present: broken clay skins on vertical faces

5836 15-26 inches. Light gray (10YR 7/2 dry) to pale brown (10YR 6/3 moist) loam; weak coarse sub-C1. angular blocky structure; very friable, moist; violent effervescence; abrupt wavy lower boundary. Several Krotovinas present, filled with dark colored material of surface horizons.

Dr Semiconsolidated Tertiary consisting of lime-coated sandstone fragments ranging from 5-mm. to 10-12 inches in diameter with a loamy sand 7.5YR 6/6 moist, matrix. The upper 2-3 inches of this horizon has the fragments coated with thick layers of lime.

Note: Tertiary fragments present throughout profile, being much more numerous in lower horizons. Range in size from 3 to 15-mm. Horizons Alp, Boa and Cl were sampled for the Bureau of Public Roads.

SOIL SURVEY LABORATORY Lincoln, Nebr. 4/7/58

SOIL TYPE Rosebud LOCATION Kimball County, Nebraska loats, mod. deep

SOIL NOS. S57Nebr-53-7-(1-5) LAB. NOS. 5837-5841

		lBla		PARTI	CLE SIZI	E DISTRIB	UTION (in	mm.) (pe	r cent)	لاهد		
DEPTH	HORIZON	VERY COARSE	COARSE	мЕрјум	FINE	VERY FINE	<b>-</b>				2A2	TEXTURAL CLASS
		5AND 2-1	\$AND 1-0.5	\$AND 0.5-0.25	\$AND 0.25-0.10	SAND 0.10-0.05	\$ILT 0.05-0.002	< 0.002	0. 2-0.02	002-0002	> 1 (1.9mm)	
0-6	Alp	4.5a	9.7a	5.0a	12.3a	13.6a	33.4	17.5	44.0	9.7	: 3	1
6-10	Al2	4.2a	10.la		11.7a	16.0a	31.2	18.8	41.4	11.2	2	1
10-16	Bca	2.მა	5.6b	4.20	6.1b	10.76	38.7	31.9	34.8	17.5	1	cl
16-28	Cl	4.1b	8.7ь	6.6b	9.50	13.46	33.2	24.5	36.1	15.1	2	1
28-34	D	19.3b	16.90	9.7b	13.3b	14.0b	18.3	8.5	29.8	9.0	1	cosl
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Soil type: Rosebud losm, moderately deep Location: Kimball County, Nebraska. O.1 mile west and 120 feet north of SE corner Sec. 35, T13N, R54W. About 13 miles south and 1 mile east of Dix, Nebraska. Topography: About a 2 percent south facing slope in weathered Tertiary sands and silts on the Tertiary plains. Cultivation: Fallow, 1957. Described by: Ross D. Greenawalt and Bill McKinzie. Soil No.: S57Nebr-53-7-(1-5) Lincoln Lab.No. Horigon 0-6 inches. Grayish brown (10YR 5/2 dry) to dark brown (10YR 3/3 moist) losm; weak fine granular; 5837 Alp very friable, moist; slight effervescence; abrupt smooth lower boundary; this horizon appears to be overblow. 6-10 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) losm; weak coarse subangular blocky structure; very friable moist; slight effervescence; abrupt smooth lower 5838 Al2 boundary. 10-16 inches. Light grayish brown (10YR 6/2 moist) to dark grayish brown (10YR 4/2 moist) silt 5839 Boa loam; compound weak coarse prismatic and weak medium subangular blocky structure; very friable, moist; violent effervescence; clear wavy lower boundary. 16-28 inches. Light gray (10YR 7/2 dry) to pale brown (10YR 6/3 moist) losm; weak medium and coarse subangular blocky structure; very friable, moist; violent effervescence; gradual smooth 5840 СJ lover boundary. Friable Tertiary material consisting of lime-covered sandstone fragments ranging <u> ናጹኬን</u>

also present.

Note: Small Tertiary fragments scattered throughout profile being more abundant in lower horizons. Several Krotovines present down through profile filled with darker colored material from surface horizons. Horizons Alp, Bca and Cl were sampled for the Bureau of Public Roads.

SOIL SURVEY LABORATORY Lincoln, Nebr. 4/7/58

SOIL TYPE Rosebud LOCATION Kimball County, Nebraska silt loam, moderat ly deep

SOIL NOS. <u>857Nebr-53-10-(1-5)</u> LAB. NOS. <u>5850-5854</u>

<u> </u>	***************************************	1Bla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	er cent)	3A1	~~~~~	\$640 for parity against annium de
DEPTH WICHES	HORIZON	VERY COARSE	COARSE	MEDIUM	FINE	VERY FINE					2A2	TEXTURAL CLASS
	1000,200	SAND 2-1	\$AND 1-0.5	SAND	\$AND 0.25-0.10	SAND	SILT 0.05-0.002	CLAY	0 2002	a02-a002	> 2	ÇEA33
			1-0.3		*******	0.10-0.03			}	dos-doct		
0-4	Alp	0.6	5.0	5.7	10.0	16.9	37.8	24.0	45.8	14.2	Tr.	1
4-12	B2	0.2	1.5	1.9	4.6	14.0	39.9	37.9	42.1	14.6	-	cl
12-15	Bca.	0.2a	0.8a	1.6a	5.2a	15.5a	42.6	34.1	43.8	17.5	-	cl
15-22	C1	0.4a	2.8a			20.7a	34.3	23.2	48.3	14.0	_	1 1
22-28	m		18.3a		= 1	11.5a	n.8	15.7	26.3	5.6	24	cosl
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- International Control		de tressetro das ef	······	NIC MA		**************************************	ELECTRI-	6Ela	*************	21111111111111111111111111111111111111	URE TE	
	pH ™åX5™3	8Cla		6Bla	, iek		CAL	V-11-11-			OKE I	4162
8CHD	8Cla					EST% SALT	CONDUC-		GYPSUM			
RATED			ORGANIC	NITRO-		(BUREAU	EC×103	equiy-	ma./100a.	1/10	1/3	15

Soil type: Rosebud silt loam, moderately deep Location: Kimball County, Nebraska. 330 feet east and 60 feet north SW corner Sec. 30, T13N, R56W. About 12 miles south and 7 miles west of Kimball, Nebraska.

Topography: About a 1 percent slope on a nearly level losss-covered Tertiary plain. Cultivation: Fallow, 1957.

Described by: Ross D. Greenawalt and Rill McKinzie.

Soil No.: S57Nebr-53-10-(1-5)

Lincoln

Lab. No. Horizon 5850 0-4 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2.5 moist) silt loam; Alp weak fine granular; very friable, moist; abrupt smooth lower boundary.

5851 4-12 inches. Brown (10YR 5/3 dry) to dark brown (10YR 3/3 moist) silty clay loam; compound weak B2 coarse prismatic and moderate fine and medium subangular blocky structure; firm, moist; abrupt smooth lower boundary; 5-mm. worm casts present, filled with dark colored surface soil. Continuous clay skins on both vertical and horizontal faces.

12-15 inches. Light gray (10YR 7/2 dry) to pale brown (10YR 6/3 moist) silt loam; compound weak coarse prismatic and weak fine and medium subangular blocky structure; friable, moist; violent 5852 Rea effervescence; clear smooth lower boundary.

15-22 inches. Light gray (10YR 7/2 dry) to light brownish gray (10YR 6/2 moist) silt loam; weak coarse subangular blocky structure; very friable moist; violent effervescence; gradual smooth 5853 C) lower boundary; few Tertiary fragments and small pockets, coarse sand found in horizon.

5854  $\mathbf{m}$ 22-28 inches. Very pale brown (10YR 7/3 dry) to light yellowish brown (10YR 6/4 moist) silt loam; massive structure; very friable moist; violent effervescence; abrupt wavy lower boundary. Horizon consists of limestone and lime-covered gravels. Consists of 60 percent fragments over 3/4 inch in

28+ inches. Semiconsolidated Tertiary with lenses and pockets of coarse sand.

The surface 22 inches appears to be losssial material. Horizons Alp, B2 and C1 were sampled for the Bureau of Public Roads.

SOIL SURVEY LABORATORY Mandan, N. Dak. 8/ 9/20/35

SOIL TYPE Sharpsburg LOCATION Cass County, Nebraska silty clay loam

SOIL NOS. S514Nebr-13-2-(1-8) LAB. NOS. 2218-2225

************		1B1b	· br desottd zz betar bl	PARTI	CLE SIZ	E DISTRIE	WTION (in	mm.) (pe	er cont)	BAL	far of hidd ar hyagan	; ;
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > ²	TEXTURAL CLASS
		7-1	1.9.5	0,5-0.25	0 25-0.10	0.10-0.05	0.05-0.002	< 0 002	0, 2-0, 02	G03-G003		<u> </u>
0-6	Alp		0.1	0.1	0.2	1.9	70.3	27.4	45.8	26.5	-	sicl
6-11	A12	_	_	0.1	0.1	2.3	65.1	32.4	40.2	27.2		sicl
11-14	ь3	-	0.1	0.1	0.1	1.7	61.9	36.1	36.0	27.7		sicl
14-21	Bl		C.1	0.1	0.1	1.4	59.2	39.1	34.5	26.2	-	sicl
21-30	B21	_		0.1	0.1	1.7	56.6	41.5	31.8	26.5		sic
30-45	B22	-	-	0.1	0.2	2.5	60.4	36.8	35.8	27.1	-	sicl
45-53	B3	-	-	0.1	0.2	2.0	63.9	33.8	36.8	29.1	-	sicl
53-60	C	-	0.1	0.2	0.2	1.8	64.7	33.0	35.8	30.9	-	sicl
**************************************	рН		ORGA	NIC MA	1 TER	! 	ELECTRI-	6Ela	; `trans:express:m# !	MOIST	UPE T	ENSIONS
SCID SATU- RATED PASTE	801a 1:5		ORGANIC CARBON	NITRO- CEN	C/N	ESTS SALT (BUREAU CUP)	ELECTRI- CAL CONDUC- TIVITY EC < 103 MILLIMHUS PFR CM	equiv- alent	GYPSUM 	1/10 ATMOS.	1/3 ATMOS.	4B2 15 ATMOS.
				*			,	5		*	<b>š</b>	
5.2	5.8	5.9	1.79	.154	11.6			<b>-</b>				10.9
5.3	5.9	6.0	1.77	.154				-				13.3
5.4	6.0	6.2	1,51		10.8			_				15.1

Soil type: Sharpsburg silty clay loam

Soil No.: **85**4Nebr-13-2-(1-8)

Location: .3 mile west and 200 feet north of southeast corner Sec. 30, Thin,

RIOE; 1 mile north and 2-3/4 miles east of Alvo, Cass County, Nebraska.

Topography: 3 percent west facing slope in gently rolling loess-mantled till

plain.

Described by: B. H. Williams.

Mandan

Lab.

No. Horizon Depth

2218 Alp 0-6" Dark grayish brown (10YR 4.5/2, dry) to very dark brown (10YR 2/2, moist) silty clay loam; moderate very fine granular structure; soft, dry; friable, moist; abrupt smooth lower boundary.

2219 A<sub>12</sub> 6-11" Dark grayish brown (10YR 4/2, dry) to very dark brown (10YR 2/1.5, moist) silty clay loam; strong fine granular structure; soft, dry; friable, moist; clear smooth lower boundary.

2220 A<sub>3</sub> 11-14" Dark grayish brown (10YR 3.5/2, dry) to very dark brown (10YR 2.5/2, moist) heavy silty clay loam; weak coarse blocky separating to moderate to strong fine granular or very fine subangular blocky structure; slightly hard, dry; friable, moist; clear smooth lower boundary.

2221 B<sub>1</sub> 14-21" Brown (10YR 4/3, dry) to dark brown (10YR 3/3, moist) heavy silty clay loam or silty clay; compound moderate coarse prismatic and coarse blocky and strong very fine subangular blocky; hard, dry; firm, moist; gradual smooth lower boundary.

2222 B<sub>21</sub> 21-30" Brown (10YR 5/3, dry; 4/3, moist) heavy silty clay loam or silty clay; compound moderate coarse prismatic and

SOIL TYPE Sharpsburg LCCATION Cass County, Nebraska silty clay loam

SOIL NOS. S54Nebr-13-1-(1-8) LAB. NOS. 2210-2217

ide <u>ging , spiriti</u> for 179 <sub>0</sub>	<u> </u>	IBIP		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	er cont)	JAI		
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURA CLASS
		2-1	1.9.5	0,5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	< 0 002	0.2-0.02	<b>003-000</b> 5		ļ 
0-5 5-10 10-13 13-18 18-28 28-40	Alp All A3 B1 B21 B22	0.1	0.2	0.1 0.1 0.1 -	0.4 0.2 0.2 0.1 0.1	2.9 2.1 1.8 1.3 1.8	65.9 62.1 58.4 57.0 55.5 60.7	30.4 35.5 39.5 41.6 42.6 37.2	38.8 34.4 32.4 29.2 34.7	25.5 26.0 25.9 28.1 28.0	-	sicl sicl sicl sic sic sic
40-51 51-60	B3 C	-	0.1	c.1	0.1	1.7 2.1	63.2 64.5	35.0 33.0		29.8 30.4	-	sicl sicl
ngga Phondad nadalania i M		Marie residentales	<b>3651931</b> M.200011	949904 (3884)	***************************************		, approximation	***************************************	1-W-14-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1			!
SATU-	∍H   8c1a}	-158	ORG/	MIC MA	TTER	ESTS	ELECTRI- CAL CONDUC-	6Kla		WOIS	TURE TE	4B2
RATED PASTE	1:5		ORGANIC CARBON	NITRO-	C/N	SALT (BUREAU CUP)	TIVITY EC +103 MILLIMHOS PFR CM		GYPSUM me./190g. SOIL	1/10 ATMOS.	1/3 ATMOS.	ATMOS.
5.3 5.4 5.5 5.6 5.9 6.0	6.1 6.0 5.8 6.1 6.1 6.2 6.9 7.1	6.2 6.2 6.4 6.6 6.8 6.9 7.1	2.15 2.04 1.71 1.32 0.73 0.34 0.19 0.14	.180 .170 .146 .132 .067	11.9 12.0 11.7 10.0 10.9			-				12.4 14.8 16.6 17.6 18.1 16.8 16.3
5Ala		EXTRAC	TABLE (	CATIONS	581a	BASE	****************		5A3a	803		<u></u>
CATION EXCHANGE CAPACITY NH <sub>1</sub> Ac	6)127b Co	602b	н	6P2a No	K PØSE	SAT.	Na	ĸ	Sum Sations			MOISTUR AT SATU- RATION
		millioquiv	alemts per	100g, soil	<del></del>	501		1	ne/100g		:	\$
23.6 26.2 28.0 28.0 29.5 27.9 27.6 27.4	13.2 15.2 16.9 17.2 18.6 17.8 18.0 17.5	6.7 7.9 9.0 8.9 9.1		0.1 0.1 0.1 0.1 0.2 0.3 0.3	1.4 0.7 0.5 0.4 0.5 0.5 0.5	82 82 86 91 96 98 100 <b>9</b> 9			21.5	2.9 2.7 2.5 2.1 2.0 2.0 2.0		
<u>a</u> / Po	rticle	size	analys	es by	Beltsv	ille Ia	boratory	•				

Soil type: Sharpsburg silty clay loam

Soil No.: S54Nebr-13-1-(1-8)

Location: 500 feet south of east quarter corner Sec. 18, TION, RLIE; 4 miles

east and .5 mile south of Elmwood, Cass County, Nebraska.

Topography: About 3 percent west facing slope in gently rolling landscape.

Land use: Cultivated, corn 1954. Described by: B. H. Williams.

Mandan Lab

No. Horizon Depth

2210 Alp 0-5" Dark grayish brown (10YR 1/1.5, dry) to very dark brown (10YR 2/2, moist) silty clay loam; moderate fine and very fine granular structure; soft, dry; friable, moist;

abrupt smooth lower boundary.

2211 All 5-10" Dark gray (10YR 3.5/1, dry) to very dark brown or black (10YR 2/1.5, moist) silty clay loam; strong fine granular

structure; soft, dry; friable, moist; clear smooth

lower boundary.

2212 A<sub>3</sub> 10-13" Dark grayish brown (10YR 3.5/2, dry) to very dark brown

(10YR 2.5/2, moist) heavy silty clay loam; strong fine granular structure; soft, dry; friable, moist; clear

smooth lower boundary.

2213 By 13-18" Dark grayish brown (10YR 4/2, dry) to very dark brown

(10YR 3/2, moist) heavy silty clay loam; compound weak

Assert water the state of the same of the

black crack filling around the coarse prisms; gradual wavy lower boundary.

2214 B21 18-28" Brown (10YR 5/2.5, dry) to dark brown (10YR 3/3, moist)

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1959

SOIL TYPE Sharpsburg LOCATION Saunders County, Nebraska silty clay loam

SOIL NOS. S58Nebr-78-3-(1-11) LAB. NOS. 8430-8440

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	1464162016191761884181	148887119931444444	1Bla	199741611112 <del>1</del> 000240	PARTI	CLE SIZ	E DISTRIB	UTiON (in	mm.) (po	r cent) 3			
1	DEPTH		VERY				VERY					2A2	TEXTURAL
		HORIZON	COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	FINE	SILT	CLAY			> 2	CLASS
			2-1	1-0,5	0.5-0.25	0. 25-0. 10	C. 10-0.05	0.05-0,002	< 0.002	0.2-0.02	0.02-0.002		
	o-8	Alp	0.la	0.la	0.la	0.2a	4.7a	62.0	32.8	44.8	22.0	-	sicl
į	8-12	Bl.	<0.1	<0.1	<0.1	<0.1	3.5a	52.1	44.4	35.3	.20.3	-	sic
1	12-19	B21	<0.1	<0.1	<0.1	O.la	4.la	54.9	40.9	38.9	20,2	-	sic
ļ	19-30	B22	<0.1	<0.1	<0.1	0.2a	4.6a	59.0	36.2	41.6	22.2	-	sicl
,		—زر <b>ک</b> ب	<b>/</b> △ 3—		تحمل	ላ ለ	1- 1-	En 6	<u>⊃⊏ Ω</u> :	ב וול	י ממ מי		<u>:                                    </u>

Soil type: Sharpsburg silty clay loam Soil No.: S58Nebr-78-3-(1-11)

Location: .1 mile west and 100 feet north of the southeast corner Sec. 5, T15N, RoE; approximately 2 miles north

and 2 miles west of Malmo, Saunders County, Nebraska.

Physiography: Massected losss-mantled till plain.

Relief: 50 to 60 feet.

Slope: 2 percent smooth south facing convex slope.

Parent material: Peorian losss. Erosion: Slight to moderate.

Drainage: Well.

Permeability: Moderately slow.

Land use: Corn 1958.

Described by: W. E. McKinzie and J. A. Elder.

Horizon and Lincoln Lab. Number

Alp 8430 0 to 8 inches. Very dark brown (10YR 2/2 moist) to very dark grayish brown (10YR 3/2 dry) silty clay loam; weak fine granular; friable, moist; no effervescence; abrupt smooth boundary.

8 to 12 inches. Dark brown (10YR 3/3 moist) to dark grayish brown (10YR 4/2 dry) silty clay loam; Bl strong fine subangular blocky; firm, moist; no effervescence; organic staining along aggregates and 8431 thin patchy clay skins on aggregates; clear smooth boundary.

12 to 19 inches. Bark brown (10YR 4/3 moist) to brown (10YR 5/3 dry) silty clay losm; moderate medium prismatic to strong fine subangular blocks; firm, moist; no effervescence; thin continuous clay skins B21 8432 on aggregates; gradual smooth boundary.

19 to 30 inches. Dark grayish brown (10YR 4/2 moist) to yellowish brown (10YR 5/4 dry) silty clay loam; moderate medium prismatic to moderate fine and medium blocky; firm, moist; no effervescence; B22 8433 thin continuous clay skins on aggregates; gradual smooth boundary.

30 to 40 inches. Dark grayish brown (10YR 4/2 moist) to pale brown (10YR 6/3 dry) silty clay loam; B23 8434 moderate medium prismatic to moderate fine and medium blocky; friable, moist; no effervescence; few fine faint gray and yellowish brown mottles; clear amouth boundary.

B3 8435 40 to 45 inches. Light clive brown (2.57 5/4 moist) to light yellowish brown (2.57 6/4 dry) silty clay loam; weak coarse prismetic to weak medium subangular blocky; friable, moist; no effervescence; common fine distinct gray mottles; gradual amouth boundary.

45 to 54 inches. Light clive brown (2.5Y 5/4 moist) to light yellowish brown (2.5Y 6/4 dry) silty clay 8436 loam; weak coarse prismatic to weak medium subangular blocky; friable, moist; no effervescence; common medium distinct gray mottlings and few medium faint yellowish brown mottles; gradual smooth boundary.

02 8437 54 to 60 inches. Olive brown (2.57 4/4 moist) to light yellowish brown (2.57 6/4 dry) light silty clay loam; weak coarse prismatic; very friable, moist; no effervescence; common medium faint yellowish brown and gray mottles; scattered iron and manganese concretions.

60 to 72 inches. Olive brown (2.5% 4/4 moist) to light grayish-brown (2.5% 6/4 dry) light silty clay C3 8438 loam; weak coarse prismatic; very friable, moist; no effervescence; common medium fine yellowish brown and gray mottles; few dark brown iron and manganese concretions; gradual smooth boundary.

72 to 96 inches. Light olive brown (2.51 5/4 moist) to pale yellow (2.51 7/4 dry) light silty clay loam; weak coarse prismatic; very friable, moist; no effervescence; common medium fine yellowish brown and gray mottles; few dark brown iron and manganese concretions; gradual smooth boundary. C4 8439

SOIL SURVEY LABORATORY Lincoln, Nebr. February 1959

SOIL TYPE Sharpsburg LOCATION Saunders County, Nebraska silty clay loam

SOIL NOS. S58Nebr-78-6-(1-11) LAB. NOS. 8457-8467

DEPTH HORIZON COARSE COARSE MEDIUM FINE FINE SAND SIL	LT CLAY 2A2 TEXTURAL CLASS
2-1 1-0.5 0.5-0.25 0.25-0.10 0.10-0.05 10.05-0	
0-6   Alp   <0.1   0.1a   0.3a   6.0b   63.	.7 29.8 46.5 23.4 - sicl
6-10 Bl 0.la 0.2a 0.la 0.la 4.4b 57.	.2   37.9   38.1   23.5   -   sicl
10-18 B21 <0.1 0.2a 0.2a 0.3a 4.3b 53.	
18-27 B22 0.la 0.la 0.la 0.3a 6.lb 57.	
27-32 B3 <0.1 0.1a 0.1a 0.3a 8.0b 58.	
32-40 Cl <0.1 0.la 0.la 0.4a 8.3b 59.	
40-50 C2 0.1a 0.1a 0.1a 0.5a 7.2b 59.	
50-60 C3 <0.1 O.la O.la 0.5a 5.7b 62.	
60-84 C4 0.1a 0.2a 0.2a 0.5a 7.0b 64.	
84-93 C5 $<0.1$ 0.4a 0.4a 0.8a 6.5b 65.	.4 26.5 47.6 24.8 - 811
PH ORGANIC MATTER ELEC	TRI- GELA MOISTURE TENSIONS
8Cla 6Ala 6Rla CONC	4B2
1:5 1:10 CARBON GEN C'N MILLE	103 equiv. me./100g. IMHOS elent SOIL ATMOS. ATMOS. ATMOS.
1.1 % % PER	SM % % %
5.8   1.54 0.165 9.3   0.4	
5.8 1.24 0.113 11.0 0.4	
6.1 0.69 0.061 11 0.4	
5.2 0.34 0.048 7 0.4	
5.2 0.26 0.4 6.4 0.21 0.5	14.5
6.5 0.13 0.5	
6.6 0.12 0.5	
5.9 0.09 0.4	13.6
7.0 0.08 0.4	+ 4 14.4
SALE EXTRACTABLE CATIONS 5818 BASE BASE	•   5Bla   5A3a   8D3   8A
CATION 6NZb 602b 6HLa 6P2a 602a Sat	. % Sum MOIŞTURE
EXCHANGE OD	Sum Sum Cat- Ca/Mg SATU-
NH. Ac	ions Bases ions CATION
milliequivalents per 100g. sell >C1 >C	G3 <=me/100 g> 5
20.3 11.8 4.1 7.7 < 0.1 1.4 85 69	
24.3 14.8 6.0 7.4 <0.1 0.8 89 74	
27.1 17.0 7.5 6.2 0.1 0.7 93 80	25.3 31.5 2.3 66.5
25.0 16.5 7.3 5.0 0.1 0.7 98 83	3 24.6 29.6 2.3 63.6
23.7 16.1 6.8 4.5 0.1 0.7 100 8	23.7 28.2 2.4 65.9
23 8 16.1 6.8 3.7 0.2 0.7 100 86	

Soil type: Sharpsburg silty clay loam

Soil No.: S58Nebr-78-6-(1-11)

Location: .2 mile north and 50 feet east of west quarter corner Sec. 17, Ti6N, R6E (east fourth light pole south of

transformer pole); approximately 5 miles south of Morse Bluff, Saunders County, Nebraska.

Physiography: Missected losss-mantled till plain.

Relief: 40 to 60 feet.

Slope: 2 percent smooth south-southwest facing convex slope.

Parent material: Peorian losss. Brosion: Slight to moderate. Drainage: Well.

Permeability: Moderately slow.

Land use: Corn 1958.

Described by: W. E. McKinzie and J. A. Elder

Horizon and Lincoln Lab. Number

Alp 0 to 6 inches. Very dark brown (10YR 2/2 moist) to very dark grayish brown (10YR 3/2 dry) light silty clay losm; weak fine granular; friable, moist; no effervescence; abrupt smooth boundary.

El 6 to 10 inches. Very dark grayish brown (10YR 3/2 moist) to dark grayish brown (10YR 4/2 dry) silty clay losm; weak coarse subangular blocky to moderate fine subangular blocky; friable, moist; no effer-vescence; clear smooth boundary.

10 to 18 inches. Dark brown (10YR 4/3 moist) to brown (10YR 5/3 dry) silty clay loam; weak coarse subangular blocky to moderate medium subangular blocky; firm, moist; no effervescence; thin continuous clay skins on aggregates; gradual smooth boundary.

18 to 27 inches. Dark grayish brown (10YR 4/2 moist) to brown (10YR 5/3 dry) silty clay loam; moderate 8460 medium prismatic to moderate fine and medium blocky; slightly plastic, wet; no effervescence; thin continuous clay skins on aggregates; few fine faint dark brown mottles; gradual smooth boundary.

27 to 32 inches. Dark grayish brown (10YR 4/2 moist) to brown (10YR 5/3 dry) silty clay loam; weak coarse primmatic to weak medium subangular blocky; slightly plastic, wet; no effervescence; thin patchy clay skins; few faint fine yellowish brown mottles; clear smooth boundary.

Cl 32 to 40 inches. Dark grayish brown (2.5Y 4/2 moist) to grayish brown (2.5Y 5/2 dry) silty clay loam; 8462 weak coarse prismatic to weak medium subangular blocky; friable, moist; no effervescence; common fine and medium distinct yellowish brown mottles with scattered dark brown iron and manganese concretions; gradual smooth boundary.

C2 40 to 50 inches. Grayish brown (2.5Y 5/2 moist) to light brownish gray (2.5Y 6/2 dry) light silty clay 8463 loam; weak coarse prismatic; friable, moist; no effervescence; common fine and medium distinct yellowish brown mottles with scattered dark brown iron and manganese concretions; gradual smooth boundary.

50 to 60 inches. Grayish brown (2.5Y 5/2 moist) to light brownish gray (2.5Y 6/2 dry) light silty clay loam; weak coarse prismatic; friable, moist; no effervescence; common fine and medium distinct yellowish brown mottles with scattered dark brown iron and manganese concretions.

C4 60 to 84 inches. Light clive brown (2.57 5/4 moist) to light yellowish brown (2.57 6/4 dry) light silty clay loam; weak coarse prismatic; very friable, moist; no effervescence; common fine distinct gray and yellowish brown mottles with higher percentage of gray mottles; gradual smooth boundary.

65 84 to 93 inches. Light olive brown (2.5Y 5/4 moist) to light yellowish brown (2.5Y 5/4 dry) light silty clay loom; weak coarse prismatic; very friable, moist; no effervescence; common fine distinct gray and yellowish brown mottles with a high percentage of mottling being yellowish brown; gradual mnoth boundary.

SOIL TYPE Sharpsburg LOCATION Machington County Nebrooks

SOIL NOS. S57Rebr-89-4-(1-7) LAB. NOS. 6278-6284

1		lBla	,	PARTI	CLE Siz	E DISTRIB	UTION (in	mm.) (pe	a cour	.3A1	***** *******	: ;
DEPTH		VERY	******	MERMA		VERY FINE					2A2	TEXTURAL
INCHES	HORIZON	SAND	COARSE SAND	MEDIUM SAND	FINE SAND	SANO	SILT	CLAY			> 2	CLASS
		2-1	1-0.5	0.5-0.25	0. 25-0. 10	6.10-0.05	0.05-0.002	< 0.602	0.2-0.02	Q92-Q002		[
	$\mathtt{Alp}$	-	O.la		-	1.5	66.5	31.9	38.8	29.2	-	sicl
5-12		0.2ъ	0.2ъ	0.1b	0.1ь	1.1b	64.7		36.4	;	7	sicl
12-16	·	0.3b	0.36	0.2ъ	0.2b	0.9b	62.2	35.9	27.5			sic1
16-24		0.2ъ	0.3b		0.2ъ	1.1b	60.0		31.4	:		sicl
24-36		-	0.3b		0.36	2.15	61.1	36.0	36.1	27.3		sicl
36-48 48-60		-	0.1ъ		0.3b	2.6b	62.6		38.2		•	sicl
40-00	U	-	0.10	0.1b	0.26	3.0b	65.1	31.5	42.4	25.8	-	sicl
leanterman						14824214444	44401/5104474-149474	भुद्धाः			*********	
	pН			NIC MA			ELECTRI-	6Ela		MOIST	URE TE	
8Cla			6Ala	6Bla		EST% SALT	CAL CONDUC- TIVITY	CaCOa	GYPSUM			4B2
	1:5	1:10	ORGANIC CARBON	NITRO-	C/N	(BURE 40 CUP)	EC×103		me. /100g. SOIL	1/10 ATMOS.	1/3 ATMOS.	15 ATMOS.
1:1	1.2	1	5	%	0"	<b>437</b> ,	PER CM	%	70,0	%	96	%
}			2.14	.193	11.1							12.6
5.8 6.1 6.5 6.6			2.11	.188	11.2							14.0
6.5			1.47		10.8							15.4
6.6			0.91	.088	10.3							15.3
6.7	i		0.48									10.4
6.7			0.26									10.2
6.8			0.18					-				13.2
5Ala			TABLE (			BASE	Base	5Bla	5Ä3a	1 1	Vol.	! !
CATION	6MSP	602ъ	6Hla	6P2a	602a	SAT. NH%AC	Sat. %	Sum	Sum		Wt.	
			-		-	. مصد المديم		•	•	,	• •	•

Soil type: Sharpsburg silt loam S57Nebr-89-4-(1-7) Soil No.:

350 feet north and 100 feet west of southeast corner of southwest quarter Sec. 28. TION. RIOW. Washington Iocation:

County, Nebraska.

Physiography: Nearly level loess plain.

Relief: 2 to 6 feet. Slope: Level, less than 1 percent. Parent material: Peorian loss. Drainage: Moderately well. Permeability: Moderately slow. Iand use: Cultivated, wheat 1957.

Described by: J. A. Elder and H. L. Kollmorgen.

Horizon and Lincoln Lab. Number

0 to 5 inches. Very dark brown (10YR 2/2 moist) to dark grayish brown (10YR 4/1.5 dry) heavy silt loam; Alp 6278 weak subangular blocky clods breaking to moderate very fine granules; friable, moist; slightly hard, dry; abundant roots; no effervescence; abrupt smooth boundary.

5 to 12 inches. Very dark brown (10YR 2/1.5 moist) to dark grayish brown (10YR 3.5/2 dry) light silty clay loam which crushes to 10YR 3/3 moist. Moderate fine granular; friable, moist; slightly hard, dry; abundant roots; many very fine pores and numerous worm casts; an occasional 1/8-inch iron-A12 6279 manganese shot-like concretion; no effervescence; clear smooth boundary.

12 to 16 inches. Very dark grayish brown (10YR 3/2 moist) to dark grayish brown (10YR 4/2 dry) silty clay loam which crushes to dark brown (10YR 3/3 moist); weak medium subangular blocky breaking to 6280 moderate fine granular; patchy coating on aggregates; roots plentiful, few worm casts; no efferves-cence; few 1/16- to 1/8-inch very dark brown shot-like concretions; clear smooth boundary.

16 to 24 inches. Very dark brown (10YR 3.5/3 moist) to dark grayish brown (10YR 4/2 dry) silty clay loam crushing to 10YR 4/3, moist; weak medium subangular blocky breaking to moderate fine granular; B21 6281 slightly firm, moist; hard, dry; roots plentiful, few very fine pores; an occasional 1/16-inch very dark brown shot-like concretion; no effervescence; clear smooth boundary.

24 to 36 inches. Dark grayish brown (10YR 4/2.5 moist) to grayish brown (10YR 5/2.5 dry) silty clay B22 6282 losm; weak coarse prismatic breaking to moderate fine subangular blocky; slightly firm, moist; hard, dry; aggregate coatings thin and continuous; some dark-colored thick coatings on faces of prisms; roots common but tend to follow faces of subangular blocks; few faint fine yellowish brown mottles; no effervescence; gradual smooth boundary.

36 to 48 inches. Dark grayish brown (2.5Y 4/2 moist) to grayish brown (2.5Y 5.5/2 dry) silty clay loam. Weak coarse prismatic breaking to weak medium and fine subangular blocky; friable, moist; slightly B3 6283 hard, dry; few roots, many fine and very fine pores; common distinct fine yellowish brown mottles; a few prominent very dark brown soft iron-manganese concretions; no effervescence; gradual smooth boundary.

48 to 60 inches. Grayish brown (2.5Y 5/2.5 moist) to grayish brown (2.5Y 5.5/2 dry) silty clay loam. Weak coarse prismatic breaking to weak subangular blocks; very friable, moist; soft, dry; numerous 6284 fine and very fine pores; common distinct fine yellowish brown mottles; a few fine prominent very dark brown soft iron-manganese concretions; no roots; no effervescence.

Horizons Al2, B22 and C sampled for Bureau of Public Roads.

SOIL SURVEY LABORATORY Lincoln, Nebr. 4/9/58 OIL TYPE Sharpsburg LOCATION Washington County, Nebraska silt loam SOIL NOS. S57Nebr-89-6-(1-7) LAB. NOS. 6292-6298 1Bla PARTICLE SIZE DISTRIBUTION (in mm.) (per conv) 3A1 DEPTH INCHES HORIZON COARSE COARSE MEDIUM FINE FINE SAND SAND SAND SAND SAND SILT CLAY > 2 · ! 1-0.5 0.5-0.25 0.25-0.10 0.10-0.05 0.05-0.002 < 0.002 0.2-0.02 0.02-0.002 0.1 0.1a 0.1a 1.7a 66.5 31.5 40.9 27.4 sicl 0-6 Al.p 65.4 32.8 40.8 26.2 6-12 A12 0.1 0.1 -1.6a sicl 63.2 35.1 37.0 27.6 sicl 0.2b 0.2b 1.3b 12-17 A3 [ 0.1 | 0.2 ] 0.1b | 0.2b | 1.1b | 61.0 37.3 34.6 27.6 sicl 11 3

Soil type: Sharpsburg silt loam Soil No.: S57Nebr-89-6-(1-7)

Location: 800 feet west and 75 feet north of center of Sec. 3, T17N, RioE, Washington County, Nebraska.

Physiography: Nearly level loss plain.

Relief: 2 to 6 feet.

Slope: Isvel, less than 1 percent. Parent material: Peorian loess. Drainage: Moderately well. Permeability: Moderately slow. Land use: Cultivated, oats 1957.

Described by: J. A. Elder and H. L. Kollmorgen.

Horizon and Lincoln Lab. Number

Alp 0 to 6 inches. Very dark brown (10YR 2/1.5 moist) to very dark gray (10YR 3.5/1.5 dry) heavy silt loss; figor moderate medium subangular blocky clods breaking to moderate fine granular; friable, moist; slightly

hard, dry; no effervescence; abrupt smooth boundary.

6 to 12 inches. Very dark brown (10YR 2/2 moist) to very dark grayish brown (10YR 2.5/2 dry) silty clay losm; upper 3 inches is a compacted plow pan, sharp-angled blocks and thick plates; the lower 3 inches is moderate medium and fine subangular blocky breaking to moderate fine and very fine granular; friable, moist; slightly hard, dry; abundant fine roots, numerous very fine pores, few worm casts; no effervescence; clear smooth boundary.

A3 12 to 17 inches. Very dark brown (10YR 2/2 moist) to very dark grayish brown (10YR 3/2 dry), to 10YR 6294 3/2 in lower part, silty clay loam; weak medium subengular blocky breaking to strong fine granular; friable, moist; slightly hard, dry; numerous fine and medium pores, numerous worm casts; no effervescence; crushes to 1/2 chip lighter and 1/2 chip browner; clear smooth boundary.

17 to 25 inches. Very dark grayish brown (10YR 3/2.5 moist) to dark grayish brown (10YR 4/2 dry) silty 6295 clay loam, crushing to 10YR 4/3, moist; weak coarse primmatic breaking to moderate fine subangular blocky; slightly firm, moist; hard, dry; abundant roots, numerous fine and medium pores; aggregates have thin nearly continuous coatings; no effervescence; clear smooth boundary.

B22 25 to 36 inches. Dark brown (10YR 3/3 moist) to brown (10YR 5/3 dry) silty clay losm, crushing to 6296 10YR 4.5/3, moist; weak medium prismatic breaking to moderate medium and fine subangular blocky; slightly firm, moist; hard, dry; thin continuous coatings on aggregates; abundant roots, few worm casts of darker materials; few faint fine yellowish brown mottles; no effervescence; gradual smooth boundary.

B3 36 to 45 inches. Olive brown (2.5Y 4/3 moist) to brown (10YR 5/3 dry) silty clay loam, crushing to 6297 slightly lighter color; moderate medium and fine prismatic breaking to moderate fine subangular blocky; slightly firm, moist; hard, dry; patchy thin coatings on aggregates; a few very fine roots, numerous fine and medium pores; fine medium common distinct yellowish brown mottles; no effervescence; gradual smooth boundary.

C 45 to 60 inches. Grayish brown (2.5Y 5/2 moist) to light brownish gray (2.5Y 5.5/2 dry) silty clay 6298 loam; weak coarse prismatic; very friable, moist; slightly hard, dry; many fine to medium pores, no roots; common distinct medium and fine yellowish brown mottles; few fine soft very dark brown iron-manganese concretions; no effervescence.

Note: Calcareous 65 to 84 inches; violent effervescence with few hard lime concretions. No effervescence 84 to 100 inches except in a few very fine pores and openings. Horizons Al2, B22 and C sampled for Bureau of Public Roads.

	OIL SURVEY LABOR	ATORY Lincoln, Nebr. 4/9/58
-		
	SOIL TYPE Sharpsburg	LOCATION Washington County, Nebraska
	silty clay lo	
	SOIL NOS. S57Nebr-	89-7-(1-7) LAB. NOS. 6299-6305
	IBIo. PA	RTICLE SIZE DISTRIBUTION (in nam.) (per cent) 3A1
[	DEPTH VERY	VERY ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !
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Soil type: Sharpsburg silty clay loam

857Nebr-89-7-(1-7) Soil No.:

Location: 400 feet west and 100 feet south of northeast corner northwest quarter Sec. 3, TLSN, R9E, Washington

County, Nebraska.

Physiography: Ridge top in dissected loess plain.

Relief: 60 to 80 feet.

Slope: 1 percent, smooth slightly convex. Parent material: Peorian loess.

Drainage: Well drained.

Permeability: Moderate.

Salt or alkali: Carbonates present at 120 plus inches as few fine soft white accumulations in pores and small openings.

Described by: J. A. Elder and H. L. Kollmorgen. Land use: Cultivated, wheat 1957.

Horizon and Lincoln Lab. Number

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0 to 6 inches. Dark brown (10YR 2/1.5 moist) to very dark gray (10YR 4/1.5 dry) silty clay loam; weak Alp 6299

subangular blocky clods breaking to moderate fine and very fine granular; friable, moist; slightly hard,

dry; no effervescence; abrupt smooth boundary.

6 to 9 inches. Dark brown (10YR 2/1.5 moist) to very dark grayish brown (10YR 3.5/2 dry) silty clay A12 losm; moderate medium subangular blocky and weak medium platy in compacted plow layer; friable, moist; 6300

## boundary. B1 6301 9 to 14 inches. Very dark grayish brown (10YR 3/2.5 moist) to dark grayish brown (10YR 4/2.5 dry) silty clay losm crushing to 10YR 3.5/3, moist; moderate fine subangular blocky breaking to fine granular; friable, moist; hard, dry; abundant roots, numerous fine pores, few worm casts; no effervescence; clear smooth boundary. 14 to 20 inches. Dark brown (10YR 3/3 mcist) to dark brown (10YR 4.5/3 dry) silty clay loam crushing B21 to 10YR 4/3, moist; weak medium prismatic breaking to moderate medium and fine subangular blocky; slightly firm, moist; hard, dry; thin continuous coatings on aggregates; numerous medium and fine pores, 6302 few worm casts, abundant roots; no effervescence; clear smooth boundary. 20 to 30 inches. Dark brown (10YR 3.5/3 moist) to brown (10YR 5/3 dry) silty clay loam crushing to 10YR 4/3, moist; moderate medium and coarse prismatic breaking to moderate medium and fine subangular R22 6303 blocky; slightly firm, moist; hard, dry; thin continuous coatings on both large and small aggregates; abundant roots but most on faces of aggregates; a few fine soft very dark brown iron-manganese concretions; no effervescence; clear smooth boundary. 30 to 42 inches. Dark grayish brown (10YR 4/2.5 moist) to brown (5/3 dry) silty clay losm crushing to **B**23

### SOIL SURVEY LABORATORY

## SOIL TYPE Silver Creek silt loam

Mandan, North Dakota

SOIL NO. <u>S52Nebr-10-1-(1-7)</u>

			1Bla		PARTIC	LE SIZE D	ISTRIBUTIO	N (in st	ım.) (p	ercent) 3	Al		1
LABORATORY NUMBER	DEPTH IM INCHES	HORIZON	VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND	SAND	VERY FINE SAND		CLAY	0.02-0.002	* **	2A2 > 2	TEXTURAL CLASS
444			-	1 5.5	0.5 0.45	0.25-0.10	0.10 0.00	0.00	₹0.002	J.OL 0.001	0,42,0.02		
1208	0-5	Alp	0.2	0.3	0.5	1.3	l 11.8	59.2	26,7	15.9	56.0		sil
1209	5-10	ลเลื	0.1	0.3	0.4	1.2	10.5	57.8	29.7	16.7	52.4		sicl
1210	10-15	Bl	0.6	0.7	0.7	2.1	6.5	41.1	48.3	17.5	31.6		sic
1,211	15-28	B2lca	1.0	1.4	1.4	4.4		41.2	42.7	17.3	35.0		sic
1212	28-37	B22	0.7	0.8	1.0	3.5	11.1	48.5	34.4	18.4	43.8		sicl
1213	37-45	Cg	0.1	1.1	2.0	7.4	13.5	36.4	39.5	15.4	39.7		cl
1214	45-52	DI.	0.9	2.4	3.1	19.9	23.4	39.1	12.2	17.5	60.0		1
		l pH		000	ANIC MA		8A2 est. x	ELECTRICAL			88739	i Sture ten	Elone
		, m			1	ILEK	1	CONDUC-	CeCO3	GYPSUM		(per cent)	
	SATURATED	1:5	1:10	ORGANIC		۱	SALT (BUREAU	COALO -	equivalent	me./100g	1/10	1/3	15
	PASTE			WHILDON	MITROGEN	C/N	CUP	WILLIMHOS PER CM 8Ala	per cant	SON OFla	ATMOS.	ATMOS.	ATMOS.
	<u>8c1b</u>	8c1a	801a	6Ala			30.7	_8Ala	6101a	6Fla	-		482
	/ ~		۱ " "	ا ۾ ۾					١.				١
	6.7	7.5 8.2	7.7	2.34				0.7	tr tr	_			14.4
	7.2	8.5	8.4	2.24				0.7 0.8	2				16.8
	7.9	8.6	8.9	0.87			0.27	4.2	4				22.1
	7.7	8.4	8.6	0.57			0.27	4.8	3				19.2
	7.8	8.3	8.6	1.05			0.25	4.1	17	4			20.6
	4.8	5.4	5.6	0.30				3.2		<u> </u>			7.3
		[ ]	***	"""									``_

Soil Type: Silver Creek silt loam Soil No.: S52Nebr-10-1-(1-8)

Date: September 1952 County: Buffalo County, Nebraska.

Location: Fifty feet east of WL/4 corner Sec. 23, T9N, R13W.

Described by: B. H. Williams.

Mandan

Lab.No.	Horizon							
1208	Alp	0-5 inches.	Very dark gray	(10YR 3/1 moist)	to dark gray	(10YR 4/1 dry)	fine granular	silt loam;
	-	no free lime		•				

1209 Al2 5-10 inches. Very dark gray (10YR 3/1 moist) to dark gray (10YR 4/1 dry) heavy silt loam or silty clay loam; macro blocky breakage but with moderate pressure breaks to medium and coarse granules; slightly calcareous with a few fine white spots of free lime carbonate.

1210 Bl 10-15 inches. Black (10YR 2/1 moist) to dark gray (10YR 4/1 dry) silty clay; macro blocky, breaking easily to medium blocks and these in turn into coarse subangular granules; fairly abundant soft lime spots and seams; otherwise not appreciably calcareous.

12:11 B21ca 15-28 inches. Very dark brown (10YR 2/2 moist) to gray (10YR 4.5/1 dry) silty clay; coarse blocky primary and fine subangular blocky-coarse granular secondary structure; calcareous including a great abundance of spots and streaks of free lime carbonate. When moderately moist the structure particles fall apart with only slight pressure; when wet the soil is sticky and plastic and hard when dry.

1212 B22 28-37 inches. Dark gray (10YR 4/1 moist) to gray (10YR 5/1 dry) heavy silty clay loam or silty clay medium blocky with some natural breakage to smaller blocks; consistence about as in horizon above and lime accumulation not so pronounced.

1213 Cg 37-45 inches. Gray and light gray marbled silty clay loam (moist) with some grayish brown seams and streaks and olive yellow and olive brown mottles; soft plastic and sticky at near saturated moisture condition when sampled; calcareous including some free lime spots and fairly abundant small shells.

1214 D1 45-52 inches. Grayish brown (2.5Y 5/2 moist) to light gray (2.5Y 7/2 dry) fine sandy loam; massive; slightly sticky, wet; slightly calcareous. Numerous fine, some coarse, mottles; mainly yellow and yellowish brown colors.

-- 12 52-60+ inches. Loose coarse sand containing some fine gravel; basic color light gray; some fine brown and yellowish brown mottles; concentric mottles or staining around root channels, some of which are 1/4 inch in diameter and continuous through the depth of the horizon samples; no free lime carbonate; horizon below water table, in nonirrigated corn field.

Note: Collected from low terrace where soils were mapped Ismoure in the published Buffalo County Soil Survey Series 1924. The soil seems to fall within the range of Silver Creek soils first described and sampled in Hall County at a higher terrace level but in flat or slightly depressed areas. The lime carbonate horizon does not show quite as heavy line concentration as in the soils of Hall County and there seems to be a little better blocky structure development in the Buffalo County soils of this kind in the general area of this sample location.

## SOIL SURVEY LABORATORY

# SOIL TYPE Silver Creek silt loam

Mandan, North Dakota

SOIL NO. S52Nebr-10-2-(1-9)

			lBla		PARTIC	LE SIZE DI	STRIBUTIO	N (IR m	ım.) (p	er cent)	3Al	-	T I
LABORATORY	DEPTH		VERY				Ì		T	<u> </u>	Ī	2A2	TEXTURAL
NUMBER	INCHES	HORIZON	COARSE	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			> 2	CLASS
	11101125		SAND 2-1	1.0.5				0.05-0.002	Z0.002	0.02-0.002	0.2481	<19mm)	CLASS
1215	0-5	Alp	0.1	0.3	0.6	1.8	16.4	60.4	20.4	14.3	63.7	-	sil
1216	5-9	Al2	0.2	0.3	0.8	2.4	13.9	51.4	31.0	13.3	53.6		sicl
1217	9-13	Bl	0.2	0.5	0.9	2.5	12.0	44.5	39.4	12.3	45.8	_	sicl
1218	13-19	B21	0.1	0.5	0.8	2.5	10.5	43.7	41.9	12.7	43.2	_	sic
1219	19-30	B22	0.7	0.8	1.2	4.1	11.8	42.8	38.6	15.5	41.8	Tr.	sicl
1220	30-34	Alb	o.i	1.0	2.2	8.5	18.0	45.2	25.0	13.5	55.5		1
1221	34-46	Blb	0.3	1.6	3.1	15.9	22.1	34.7	22.3	11.6	56.0	Tr.	li l
1222	46-51	B3gb		0.3	1.0	15.7	33.2	32.8	17.0	13.1	66.7		li l
1223	51-56	Cep	0.1	0.5	1.9	26.6	46.3	17.0	7.6	5.8	79.5	_	vfsl
1227	71-70	<b>~E~</b>	0.1	0.7	7.0	20.0	40.5	17.0	7.0	٥,٠٥	17.5	-	vrar
		рH		ORG	ANIC MA	TTER	EST. X	ELECTRICAL CONDUC-	CaCO3	GYPSUM	MOIS	STURE TEN	SIONS
	SATURATED			×	x		SALT	TIVITY ECx 10 3	equivalent	me./100g	1/10	(per cent)	15
	PASTE	1:5	1:10	ORGANIC CARBON	NITROGEN	C/N	(BUREAU	IMILLIMHOS			ATMOS.	1/3 ATMOS.	ATMOS.
	8сть	8Cla	8cla	6Ala			COB,	PER CM SALa	6Ela	SOIL 6Fla	ATTIMOS.	AIMUS.	4B2
	8.0	8.9	9.1	1.53			]	1.0	2	-	i		11.0
	8.2	9.2	9.4	1.16			-	1.1	3	_			15.5
	8.3	9.1	9.2	0.86			-	1.1	17				17.8
	8.7	9.6	9.7	0.50			_	1.1	22	_			19.1
	8.8	9.8	9.9	0.31			_	1.3	23	_			17.7
	8.8	9.8	9.9	0.16			_	1.3	Ιī	-			17.7
	8.8	9.7	9.9	0.12			_	1.4	10	-			16.3
	8.1	8.0	9.0	0.11			_	1.5	i	_			11.8
	5.4	5.5	5.7	0.31			_	4.0	l i	_			6.5
·· —=	5AJa	5Bla	ር ለጥ	IONS	5B1b	502		SATU	I RATION F	I Xtract soi	LUBIF 8	Al.	8A
	CATION	EXTRAC			GEAFT	, -	6P3e		I	1		- <u> </u>	PER CENT
	EXCHANGE	Ca	Mg	Na	. к	ABLE	Na Na	6Q1a K	CO3		l		MOISTURE
	CAPACITY		602ъ	6P2a	692a	SOUMM PERCENTAGE	Na Na		_	HCO3	CI	SO 4	AT SATURATION
	-MED_OAc n	iilliequivalent	s per 100g	soil	· -	ESP	€-	<u>'</u>	hilliequival	ents per lite	ýr <del> </del>	· +	SATURATION
	18.1			0.6	1.8	3	5.2	0.9					54.5
	19.7			2.2	1.8	11	8.3	0.5					71.6
	17.8			2.2	1.6	12	9.1	0.5					82.3
	16.8			3.0	1.7	18	10.2	0.2					103.4
	15.2			4.7	2.0	31	11.7	0.2					106.2
	19.0		9.3	6.9	2.5	36	12.8	0.2					103.0
	17.0			6.1	1.9	36	13.9	0.2					84.5
	15.3		5.4	5.3	1.5	35	14.3	0.2			Ì		64.1
	9.3		3.1	2.0	0.8	22	35.6	1.3					43.8
					Ì								·
	ŀ												
					į.								
		ļ									AGR	-\$C8-BKF18A1F7	E. mp 2002 17
		:											

Soil Type: Silver Creek silt loam
Soil No.: 552Nebr-10-2-(1-10)
Date: September 1952
County: Buffalo County, Nebraska.
Location: One-fourth mile west and 60 feet north of SE corner Sec. 24, T9N, R14W.
Described by: B. H. Williams.

Described Handan	iby: B.	H. Williams.
Iab.No. 1215	Horizon Alp	0-5 inches. Dark gray (10YR 3.5/1 moist) to gray (10YR 5/1 dry) friable, granular silt loam; lime free in general but effervesces weakly with dilute HCl in parts of the field sampled.
1216	A12	5-9 inches. Very dark brown (10YR $2/2$ moist) to gray (10YR $4.5/1$ dry) granular heavy silt loam; slightly calcareous in lower part.
1217	BI	9-13 inches. Dark gray (10YR 4/1 moist) to gray (10YR 5/1 dry) blocky granular silty clay loam; friable, moist; sticky when wet; moderately hard when dry; slightly calcareous.
1218	B21	13-19 inches. Dark gray or dark grayish brown (10YR 4/1.5 moist) to gray (10YR 5/1 dry) blocky silty clay loam; friable, moist; moderately to strongly calcareous.
1219	B22	19-30 inches. Grayish brown (2.57 5/2 moist) to light gray (2.57 7/2 dry) weak blocky, friable, silty clay loam; very strongly calcareous, mainly disseminated lime; some concretions especially in the lower 2 inches where also there are numerous small shells present.
1220	Alb	30-34 inches. Park gray (2.5Y 4/1 moist) to light brownish gray (2.5Y 6/2 dry) silty clay; moderately compact, no well-defined structure except widely spaced horizontal cleavage planes that are stained with pale brown and partly coated with free lime carbonate; the horizon is not otherwise appreciably calcareous; sticky and plastic, moist. This is a weakly developed A of a buried soil or a dark sedimentary layer.
1221	Blb	34-46 inches. Dark gray (5Y 4.5/1 moist) to light olive gray (5Y 6/2 dry) sandy clay loam or sandy clay; aside from slightly lighter color, more fine sand and faint mottles, this layer does not appear different from the one maxt above; free lime mainly along structure planes.
1222	B3gb	46-51 inches. Light clive gray or pale clive (5Y 6/2.5 moist) to light gray (5Y 7/2 dry) loam. Aside from lighter color and coarser texture not appreciably different from the two horizons next above.
1223	Cgb	51-56 inches. Olive gray (5Y 5/2 moist) to light gray (5Y 7/2 dry) sticky sandy loam; massive except vertical cleavage; abundant mottlings staining, especially along root channels; no free lime.
	D	56-60 inches. Medium and fine loose gray sand; rests on the water table in coarse sand.

### SOIL SURVEY LABORATORY

SOIL TYPE Silver Creek silt loam

Mandan, North Dakota

SOIL NO. <u>S51Nebr-40-9-(1-8)</u>

			1Bla	,	PARTIC	LE SIZE DI	STRIBUTIO	N (in m	m.) (p	er cent) 3	A1			
LABORATORY NUMBER	DEPTH IN INCHES	HORIZON	VERY COARSE	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY		0.2-	2A2 > 2	TEXTURAL CLASS	
	""		SAND 2-1	1-0.5				D.05-0.002	<0.002	0.02-0. <b>00</b> 2		(19mm)	10033	
933	0-7	Alp	0.4	0.6	0.9	3.1	19.7	56.3	19.0	15.2	62.6	_	sil	
934	7-12	Alž	0.4	0.6	0.8	2.8	19.3	55.3	20.8	16.4	60.2	_	sil	
935	12-17	B21	0.5	0.5	0.5	1.2	ĩĩ.ŏ	39.9	46.4	12.4	39.2	l _	c	
936	17-22	B22	1.3	0.8	0.6	1.2	9,6	41.8	44.7	14.2	37.9	28	sic	
937	22-30	B3	3.7	0.8	2.1	1.5	9.4	46.0	36.5	17.1	39.2	2a.	sicl	
731	30-40	ci S		2.2	1.0	1.8	10.8		26.6	20.4	41.4			
938	1 -	-	7.7	_				49.9				2a.	1	
939	40-55	C2	1.9	1.2	0.7	1.0	15.9	56.6	22.7	22.9	50.1	8a.	sil	
940	55-60	¢3	0.5	0.5	0.4	1.0	18.4	57.8	21.4	22.7	54.1	6а.	sil	
72 0		DH DH		ORG	ANIC MA	TER .	EST.A2	ELECTRICAL			MOI	<u>                                     </u>	 Sions	
	<del>                                     </del>	T	ı			· · · · · · · · · · · · · · · · · · ·		CONDUC-	CeCO3	GYPSUM		(per cent)	1	
	SATURATED			X ORGANIC	x		SALT	EC x 10 3	equivalent	me./100g	1/10	1/3	15	
	PASTE	1:5	1:10	CARBON	NITROGEN	C/N	(BUREAU	MILLIMHOS	per cent	9011	ATMOS.	ATMOS.	ATMOS.	
V=X	8стр	8сла	8Cla	6Ala			CUP	PEACH	6EL	SOIL 6Fla	_		4B2	
	6.9	7.3	7.4	2.38			-	1.8	-	-			8.9	
	8.5	9.3	9.6	1.13			-	1.4	2	-			9.8	
	8.7	9.5	9.5	0.80			-	1.6	2	-			23.8	
	8.9	9.3	9.5	0.62			-	2.1	8	_			25.3	
	8.5	9.2	9.6	0.32			-	3.5	18	_			17.5	
	8.1	9.0	9.2	0.19			_	3.2	18				14.2	
	7.9	8.7	9.0	0.09			_	2.8	13	l <u> </u>			12.3	
	7.8	8.6	9.0	0.07				1.2	8	_			11.2	
	'.0	0.0	9.0	0.01			-	1.5	"	_			11.6	
_ •	5Ala caffon	5Bla (	CATION	3	5B1b	502		ŞATU	RATION E	XTRACT SOI	UBLE 8	Al	8A PER CENT	
		EXTRAC		EXCHAIN	GEABLE	EJUMANGE- Arle	6Pla	6Q1a			1		MOISTURE	
	EXCHANGE	Ca 6NI21b	Мg 602ъ	6P2a	602a	SOUM	Na	K	CO 3	HCO3	CI	SO A	AT	
	CAPACITY	1			Oekea	PERCENTAGE		_ ا	aitliaanivat	ents per lite	Ĺ	1 .	SATURATION	
	<b>-</b>	niltieguivalent _			<del>                                     </del>	COF	<del>-</del>	†	iiiiequivai	ents per nte	<u> </u>	+	<b>.</b>	<del>                                     </del>
	21.3	10.8	8.4	0.3	3.3	j	0.9						58.4	
	17.0			1.1	5.7	6	6.7						50.4	
	30.8			5.4	12.3	18	13.7	2.9					84.9	
	29.2			7.3	9.8	25	24.6						116.5	
	22.7			4.2	5.0	18	33.0						88.7	
	20.1			2.5	3.0	12	23.7	2.4					63.0	
	20.8		1	1.5	2.3	7	1.3		1	1		1	52.3	
	21.3			0.7	2.0	3	4.8						48.5	
	-													
	a. L	ergely	arcar	ous c	oncret	TOUS.								
											A#1	⊩êcs-b∦LYSVILI	LE, MD 2402	 

Soil type: Silver Creek silt losm Soil No.: S51Mebr-40-9-(1-8)

Location: About 850 feet west of S1/4 corner, (BE1/4 SW1/4), Sec. 34, T12N, R11W, Hall County, Nebraska. Vegetation: Monirrigated corn; will probably yield 25-35 bushels per acre.

Parent material: Loess.

Physiographic position:
This soil occupies a slightly higher terrace position than the Exline silt loam with which it is associated. According to local information the sand and gravel is not encountered until around 15-18 feet. The area however, is one in which the ground water is encountered

at 41 to 6 or 7 feet.

Topography: Level plain. Slope: Less than 1 percent. Drainage: Medium slow. Erosion: None or slight.

Moisture: Moist. Stoniness: None.

Described by: B. H. Williams.

Date: October 9, 1951.

100

Mandan

936

Lab. No. Horizon

0-7 inches. Grayish brown (10YR 5/2 dry) to very dark brown (10YR 2/2 moist) silt loam (but with considerable very fine sand present) granular, friable; noncalcareous although in numerous 933 Alp places checked in field, the surface soil was calcareous.

7-12 inches. Grayish brown (10YR 5/2 dry) to very dark brown (10YR 2/2 moist) silt loam soft 934 A32 granular, friable; moderately calcareous.

12-17 inches. Dark gray (10YR 4/1 dry) to weak dark gray (10YR 3/1 moist) silty clay; angular blocky, sticky when moist and hard when dry; matrix is noncalcareous for the most part, but R21 935

free lime segregations are common.

17-22 inches. Grayish brown (2.5% 5/2 dry) to very dark grayish brown (2.5% 3/2 moist) silty clay; angular blocky; very sticky and plastic when wet; hard when dry; calcarcous, lime concretions larger and more numerous than in horizon above.

SOIL Thurman sandy loam SOIL Nos. SONEbr-2-1 LOCATION Antelope County, Nebraska

SOIL SURVEY LABORATORY IAncoln, Nebraska LAB. Nos. 13472-13477 December 1964

		1334						Size clas	s and parti	diamate	er (mm) 3/	1.1						
			Total					Şand		Sıl						Coar	rse fragme	nts
			[				ľ				l	_			T	2A2	2A2	
Depth	Horizon	Şand	Silt	Clay	Very coarse	Coarse	Medium	Fine	Very fine		Int. 🎞	int. □				<b>&gt; 2</b>	2 - 19	19-
(ln.)		(2-0 05)	(0.05- 0 002)	( < 0 002)	(2-1)	(1-0 5)	(0 5-0 25)	(0 25-0 1)	(0 1-0 05)	0 05-0 02	(0 02- 0 002)	(0 2-0.02)	(2-0 1)				ہ ا	l t. of _
			0 002)	ı		l Pot	. of << 2 :	mm.			1 0 002)	·				Pct		6mm
0-7	A).p	88.0	7.1	4.9	2.0	10.8	21.8	45.3	8.1	4.2	2.9	30.5	79.9			_	-	
7-12	A15	81.4		8.6	1.1	7.0	16.7	43.0		6.6	3.4	39.8	67.8			_	l -	
12-16	AC	82.5	8.6	8.9	0.6	6.8	16.2	44.5		6.3	2.3	41.9	68,1			_	l -	
16-23	CI	86.1	6.1	7.8	0.6	7.4	21.0	46.7		3.9	2.2	34.3	75.7			_	-	
23-44	œ	90.2	4.8	5.0	0.8	8.3	24.0	49.1	8.0	2.9		30.2	82.2			tr.	tr.	
44-60	C3	89.8	4.8	5.4	1.0	11.0	26.1	42.9		3.0	1.9 1.8	28.9	81.0			tr.	tr.	
					(10)	[ Cm-											<u> </u>	
	6А1а	6Bla			6ELC	60la Ext.		Bušk densit	y			ater conte					ρH	LUZ
Depth	Organic	Nitrogen	C/N		Carbonate	Iron	4Ala				4194	481a 1/10-	4B2					80
(In)	carbos				as CaCO <sub>3</sub>		Field-				Field-		15-					1 (1
							State					Pieces						H <sub>C</sub>
		۱.,			١.,.	Fe <sub>2</sub> 0 <sub>3</sub>	l				Pct.	Pct	Pct.					52
0-7	Pct O. h.7	Pet.	_		Pct	0.2	g/cc	g/cc	g/cc		PGL.	PCI	2.4		_		<del> </del>	6
7-12	0.47	0.051				0.2	1.72				11.0	11.6	3.8					5
12-16	0.52 0.41	0.046				0.3	7+14				11.0	11.0	3.6					6
16-23	0.41	0.032		<b>├</b> -	-	0.3					<del>                                     </del>		3.6					6
23-44	0.13	0.017				0.2						6.8	2.3					6
44-60	0.06	0.01				0.2						0.0	2.2					6
		Extractat	nie bases S	 5Bla		 	Cat. Ex	ch. Cap.			<u> </u>				Ì		Base sat	
	6 <b>N2</b> b	602ъ	6P2a	692a		l	5A3a			1							503	5
Depth (in.)	Cs	Mg	Na	к	Sam	Ext. Acid- ity	Sum Cat- ions	NH <sub>14</sub> OAc									Cat- ions	NEI 1
	-				meg/100 g												Pct.	P
0-7	2.7	0.5	tr.	0.7	3.9	2.0	5.9 8.8	4.6		1		1					66	8
7-12	4.1	0.7	tr.	0.8	5.6	3.2		6.7		l							64	8
12-16	4.9	0.7	tr.	0.2	5.8	2.2	8.0	6.7	-	ļ	<u> </u>	ļ		$\vdash$			72	8
16-23	4.4	0.8	tr.	0.2	5.4	1.8	7.2	5.9		1							75	9:
23-44 44-60	2.7	0.9	tr.	0.1	3.5	2.5	5.0	3.8		1							70 60	9
44-00	24 (	0.9	U.F.	V.1	3.7	2.,	0.2	3.9										7
	المن المالية																ļ.,.	

Soil type: Thurman sandy loam

S60Nebr-2-1 Soil No.

location: 375 feet west and 250 feet south of northeast corner, Sec. 34, T28N, R6W, Antelope County, Nebraska.

Physiography: Undulating to low hummocky sandy area. Slope: 3 percent; east to southeast slope sampled. Parent material: Eblian sand.

Brainage: Good.

Permeability: Moderately rapid.

Land use: Corn, in 1960.

Described by: Herbert L. Kollmorgen and John Elder, June 1960.

Horizon and Lincoln Lab. Number

Alp 13472 O to 7 inches. Very dark grayish brown (10YR 3/2 moist) sandy loam; single grained; loose moist; abrupt smooth boundary.

A12 7 to 12 inches. Very dark gray1sh brown (10YR 3/2 moist) fine sandy loam; weak coarse subangular 13473 blocky breaking to massive structure; very friable moist; clear smooth boundary.

AC 13474 12 to 16 inches. Dark grayish brown to very dark grayish brown (10YR 3.5/2 moist) fine sandy loam; weak coarse subangular blocky breaking to massive structure; very friable moist; gradual wavy boundary.

C1 13475 16 to 23 inches. Dark grayish brown (10YR 4/2 moist) lossny sand; single grain; loose moist; gradual wavy boundary.

02 13476 23 to 44 inches. Dark grayish brown to brown (10YR 4/2.5 moist) losmy sand; single grain structure; loose moist; gradual wavy boundary.

44 to 60 inches. Brown (10YR 5/3 moist) fine sand; single grain structure; loose moist. C3 13477

SOIL Thursan sandy loam

SOIL Nos. 259 Nebr-26-4 LOCATION Dixon County, Nebraska

SOIL SURVEY LABORATORY Lincoln, Nebraska

\_\_ LAB. Nos. 12397-12404

December 1964

		1Bla							s and part	icle diamet		3A1						
			Total		ļ			Sand		Si	lt						rse fragmo	
Depth	Horizon	Sand	Şift	Clay	Very	Coerse	Medium	Fine	Very fine		Int. III	Int, 🎞				2A2 > 2	2A2 2 - 19	19-
(In.)		(2-0.05)	(0.05- 0.002)	( = 0.002	(2-1)	(1-0 5)	(0.5-0.25	(0 25-0.1)	(0.1-0.05	0.05-0 02	(0.02-	(0.2-0.02)	(2-0 1)			'	1	1
			0.002)	<u> </u>		Pc	t of =< 2	Mm	l	1	0 002)	'				Pçt,		ct of _ 76mm
0-5	Alp	78.9	15.2	5.9	1.5	18.0	26.5	28.5	4.4	9.8	5.4	21.6	74.5			_	-	Ι΄
5-24	Alē	78.8	13.0	8.2	1.2	17.7	27.4	29.7 34.8	2.8	8.7	4.3	20.2	76.0			-	l -	
14-21	A3	83.4	10.3	6.3	1.0	17.1	27.0	34.8	3.5	6.1	4.2	20.8	79.9			-	<b>⊢</b> -	
21-30	AC Cl	88.5 84.9	6.1 9.5	5.4 5.6	1.0	16.7 12.2	25.0	38.1	3.3	4.3	1.8	19.6	85.2					
30-36 36-41	G5 CT	81.2	11.9	6.9	1.1 7.2	14.3	19.3	41.1 34.7	5.5 5.7	8.5	3.5 3.4	26.5 27.0	79.4 75.5			tr.	tr.	
41-52 52-66	<b>63</b>		3.1	4.3	10.6				5.9	2.2			86.7			tr.	tr.	
52-66	ĊĘ.	92.6 95.6	1.8	2.6	1.5	81.9 21.9	30.1	32:7 38:1	5.9 4.6	1.3	0.9	21:3	91.6				-	
,														_				
	6Ala	6Bla		<u> </u>	6)80.0		T	Bulk densit	,	<u> </u>		ater conte	nt			-	pH	
Depth	Organic	Nitrogen	C/N		Carbonate	Ext.	4Ala			4784	4Bla	4Bla	4 <b>B</b> 2					80
(in.)	carbon				as CaCO <sub>3</sub>	Iron as	Pield-	]		Field-	1/10-	1/3-	15-					(1
						Fe <sub>2</sub> O <sub>2</sub>	State .			Btate .	Bar	Har Bar	Bar					
	Pct	Pct.			Pct.	Fe <sub>2</sub> 03	g/cc	g/cc	g/cc	Pet.	Pct	Pct	Pct					Ħ
0-5	0.73	0.075	10		tr.	0.4					10.8	6.9	2.6					7
5-14	0.74	0.061	12			0.4	1.61			10.2	14.9	7.7	3.8					6.
14-21 21-30	0.32	0.038	8			0.4					9.4	5.4	2.3					6.
57-20	0.23	0.023				0.3	1,66			12.5	7.8 7.2	4.0	2.2					6.
30-36 36-41	0.16				_	0.4					10.6	3.9 5.7	3.0					6. 6.
41-52	0.06				-	0.3					3.4	2,0	1.4					6,
52-66	0.02				•	0.2					2.7	1.7	0.8		<u> </u>			6.
		•				698	<u> </u>	1 4										
ŀ	6 <b>82</b> b	602b	e beses <u>5</u> 6P2a	692a		OHTE	Cat.Ex 5A3a	5Ala							803		Base sat 5C3	bratic 5
Depth	OBED		O4 4.0	U-4224		Ext.	Sum	مندر									Sum.	7
(in)	Ca	Mg	Na	K	Sum	Acid- ity		NH <sub>4</sub> OAc							Ca/Mg		Cat-	NH <sub>)</sub> CI
	4			<u> </u>	meq/100 g		<u> </u>										Pct C	Po
0-5	6.4	1.0	tr.	0.4	7.8	1.4	9.2	6.9							6.4		85	113
5-14   14-21	5.7	1.2	tr.	0.2	7.1	2.8 1.6	9.9 6.6	7.8							4.8		72	93
21-30	3.9 2.7	1.0 0.8	tr.	0.1	5.0 3.6	1.6	5.2	5.2 3.9		$\vdash$					3.9		76	92
30-36	3.0	1.0	tr.	0.1	4.1	1.4	5.5	4.4							3.0		69 74	9:
36-41	3.7	1.1	tr.	0.2	5.0	1.4	6.4	5.4							3.4		78	92
41-52	2.0	0.9	tr.	0.1	3.0	0.9	3.9	2.8					1				77	307
52-66	1.4	0.5	tr.	0.1	2.0	0.9	2.9	2.2									69	9:
	Ratios 1		Δ				<u> </u>								ı			

	Ratios 1	to CLay	A 8101	
Depth (in.)	NH <sub>1</sub> OAc CEC		15-Bar Water	
0-5	1.17		0.4	
5-14	0.95		0.5	
14-21	0.82		0.4	
21-30	0.72		0.4	
30-36	0.78		0.3	
36-41	0.78		0.4	
41-52 52-66	0.85 0.85		0.3	

a. One or more horizons has relatively low cation exchange capacity. As cation exchange capacity decreases, the relative error of base saturation increases. Trace quantities are omitted from the sum of bases. For very low CEC values, this omission contributes significantly to the relative error of base saturation. Soil No.: S59Mebr-26-4

Location: 850 feet north and 200 feet east of west 1/4 corner, Sec. 27, T27N, R5E, Dixon County, Nebraska; one

Physiography: Gently rolling transition sand-loss hills area. (Usually deep sand over Peorian losss.)

Relief: B slopes; single convex slopes.

Slope: 3 to 4 percent southwest. Parent material: Bolian sand.

Brainage: Well drained.

Permeability: Moderately rapid. Land use: Cultivated; in corn.

Described by: Herbert L. Kollmorgen and John Elder, November 3, 1959.

Horizon and Lincoln Lab. Number

Alp 0 to 5 inches. Very dark brown (10TR 2/2 moist) sandy loam; weak medium and fine crumb breaking to single grained; very friable moist; no effervescence; abrupt smooth boundary.

Al2 5 to 14 inches. Very dark brown (10YR 2/2 moist) sandy loam; weak coarse and medium subangular blocky to weak fine and very fine crumb; very friable moist; no effervescence; clear smooth boundary.

A3 14 to 21 inches. Very dark grayish-brown (10YR 3/2 moist) sandy loam; weak medium and fine sub-12399 angular blocky breaking to single grained; very friable moist; no effervescence; gradual smooth

lower boundary.

AC 21 to 30 inches. Very dark grayish-brown to dark brown (10YR 3.5/3 moist) sandy loam; weak medium 12400 and fine subangular blocky to single grained; loose moist; no effervescence; gradual smooth lower boundary.

Cl 30 to 36 inches. Dark brown (10YR 4/3 moist) sandy loam; weak medium and fine subangular blocky to single grained; very friable moist; no effervescence; gradual smooth lower boundary.

62 36 to 41 inches. Dark yellowish-brown (10YR 4/4 moist) sandy loam; weak medium and fine subangular 12402 blocky to single grained; very friable moist; no effervescence; clear smooth lower boundary.

41 to 52 inches. Yellowish-brown (10YR 5/4 moist) coarse sand; contains a small amount of very fine 12403 gravel; single grained; loose moist; no effervescence; gradual smooth lower boundary.

C4 52 to 66 inches. Brown (10YR 5/3 moist) sand; single grained; loose. 12404

Deeper borings below the pit sampled showed the following:

66 to 92 inches. Brown to pale brown (10YR 5.5/3 moist) sand; loose.

92 to 96 inches. Brown (10YR 5/3 moist) sand; common fine distinct yellowish-brown iron stains; loose.

96 to 101 inches. Yellowish-brown (10YR 5/4 moist) sand; numerous medium and fine common distinct iron stains; loose.

101 to 120 inches. Brown (10YR 5/3 moist) sand; loose; noncalcareous to 120 inches.

Note: The above profile had a slightly heavier layer from 30 to 36 inches which could possibly be a loam but it was still believed to be a sandy loam. Such somewhat heavier layers are typical in the moderately sandy soils in this area. The upper 3 feet contained some evidence of old decayed roots which are believed to have been shrub or tree roots.

SOIL Mos. S59Nebr-26-5 LOCATION Dixon County, Nebraska

SOIL SURVEY LABORATORY Lincoln, Nebraska LAB. Nos. 124-05-12413 December 1964

ı — — —	т.	lRla						Ciro ala	r and nor	uolo dunmot	er (mm) 3	47						
		LHIA	Total					Sand	s and pari	Si		<u> </u>	1	l		Coa	rse fragme	ints
Depth	Horizon	Sand	Silt	Clay	Very	Coarse	Medium	Fine	Very fine		Int III	int. II				2A2	2A2	l
(in)		(2-0 05)	(0.05-	( <b>=</b> 0.002)	(2-1)	(1-0 5)	(0 5-0 25	(0 25-0 1)			(0.02-	(0 2-0 02	(2-0 1)			<b>⇒</b> 2	2 - 19	19-76
		_	0.002)	l	1 ''	 Pc	l t. of << 2	I mm	l	ı	0.002)	ı				Pct		t. of 76mm
0-6	Alp	72.8	18.7	8.5	0.5	11.7	18.9	36.7	5.0	12.3	6.4	30.8	67.8			-	-	ĺ
6-11	VIS	74.0	16.9	9.1	0.4	9.3 11,6	18.1	39.2	7.0	11.1	5.8	31.1	67.0			-	-	
11-14 14-18	AC AC	78.9 82.7	13.5	7.6 6.4	1.6	12.5	20.4	42.3	6.0	7.8 6.6	5.7 4.3	27.0	72.9 76.7				├-	
18-28	CI.	84.8	8.1	7.1	0.5	11.3	21.8	44.2	7.0	5.3	2.8	27.8	77.8			-	-	
28-34	C2	81.3	11.0	7-7	0.7	9.9	18.4	44.6	7.7	6.1	4.9	30.4	73.6			-		
34-45 45-53	C3 C4	82.7	10.4	6.9	0.4	9.6	20.6	44.7 48.2	7-4	6.4	4.0	31.5	75.3			-	-	
53-60	C5	87.6	7.1	5.3	0.5	7.5	20.7	53.9	9.4 7.6	6.2	4.2 2.7	33.1 28.1	73.3 80.0			-	-	
		1	,					122	_,									
	<u> </u>	<u> </u>				<u> </u>	<u> </u>			<u> </u>			<u> </u>				<u> </u>	<u>L</u>
	6Ala	6Bla			6Elc	6Cla Ext.	4Ala	Bulk densit	<u>'</u>	439¥	4Bla	/ater conte	nt   4B2				pH I	801a
Depth (In.)	Organic carbon	Nitrogen	C/N		Carbonate as CaCO <sub>2</sub>	Iron	<del></del>			4354	4515	4516	4.52					
(111.7)						8,5	Field-			Field-	1/10-	1/3-	15-					(1:1)
	•					Fe <sub>2</sub> O <sub>3</sub>	State			State	Bar	Ber	Bar					H <sub>2</sub> o
0-6	Pct 0.77	Pct 0.066	12		Pct.	Pet. 0.5	g/cc	g/cc	g/cc	1	Pct 15.1	8.3	Pct.	-	-			- 0
6-11	0.54	0.058	9			0.5	1.69			7.9	16.9	9.5	3.9 4.4					5.8 6.4
31-34	0.44	0.046	10		-	0.5				'-'	11.4	9.5 7.8	3.0				ļ	6.5
14-18	0.28	0.030	9		-	0.4					8.3	6.1	2.7					6.6
18-28 28-34	0.20	0.025			1 1	0.4	1.69	L		9.7	9.0 10.6	5.4 6.7	3.2 3.4					6.7
34-45	0.09				-	0.4	1.77			6.3	7.4	4.6	2.8					6.9
45-53	0.10				-	0.4					8.4	5.8	2.7					6.9
<u>53-60</u>	0.06				-	0.3				<del> </del>	6.4	3.9	2.0					7.0
	C + 200			Bla		6на		ch.Cep.							803		Base sat	
Depth	6м2ъ	Extractab 602b	6 <b>P2a</b>	6Q2a			5A3a								813		5C3	5C1
Depth (In.)	6 <b>N2</b> b				Suma	Ext. Acid-	5A3a. 80m.								8133 Ca./Mg			501
		602ъ	6 <b>P2a</b>	6 <b>92</b> a. ⊀		Ext.	5A3a. 80m.	5Ala									503 Sum Cat- ions	5C1 NELOAC CEC
	Co	602ъ	6 <b>P2a</b>	692a. K	meq/100 g	Ext. Acid- ity	5A3a Sum Cat- ions	5Ala MHù,OAc							Ca/Mg		503 Sum Cat- ions Pct.	5C1 NEI <sub>L</sub> OAC CEC Pot
0-6 6-11	4.9 6.1	602b Mg	6P2a Na tr. tr.	692a K 0.2 0.2	meq/100 g 6.5 7.8	Ext. Acid- ity 3.3 2.4	5A3a Sum Cat- ions 9.8 10.2	5Ala MHi <sub>1</sub> OAc 7.6 8.2							Ca/Mg 3.5 4.1		503 Sum Cat- ions Pct. 66 76	501 NSLOAC CEC Pet 86 95
0-6 6-11 11-14	4.9 6.1 5.5	1.4 1.5 1.6	6P2a Na tr. tr.	602a K 0.2 0.2 0.2	meq/100 g 6.5 7.8 7.3	Ext. Acid- ity 3.3 2.4 2.4	5A3a Sum Cat- ions 9.8 10.2 9.7	7.6 8.2 7.3							3.5 4.1 3.4		503 Sum Cat- ions Pct. 66 76 75	501 NSLOAC CEC Pet 86 95 100
0-6 6-11 11-14 14-18	4.9 6.1 5.5 4.4	1.4 1.5 1.6 1.3	tr. tr. tr.	692a K 0.2 0.2 0.2	meq/100 g 6.5 7.8 7.3 5.9	Ext. Acid- ity 3.3 2.4 2.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5	7.6 8.2 7.3							3.5 4.1 3.4 3.4		503 Sum Cat- ions Pet. 66 76 75	501 NSLOAC CEC Pet 86 95 100
0-6 6-11 11-14 14-18 18-28 28-34	4.9 6.1 5.5 4.4 4.2 4.7	1.4 1.5 1.6 1.3 1.6 1.8	tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2	meq/100 g 6.5 7.8 7.3 5.9 6.0 6.7	3.3 2.4 2.4 1.6 1.4	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3	5ALa 8H4,0Ac 7.6 8.2 7.3 6.0 6.6							3.5 4.1 3.4 3.4 2.6 2.6		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NSLOAC CEC Pet 86 95 100 98 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45	4.9 6.1 5.5 4.4 4.2 4.7	1.4 1.5 1.6 1.3 1.6 1.8	tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7	8xt. Acid- ity 3.3 2.4 2.4 1.6 1.4	5A3a 8km Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8	7.6 8.2 7.3 6.0 6.6 5.0							3.5 4.1 3.4 3.4 2.6 2.6		503 Sum Cat- ions Pct. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102
0-6 6-11 11-14 14-18 18-28 28-34	4.9 6.1 5.5 4.4 4.2 4.7	1.4 1.5 1.6 1.3 1.6 1.8	tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2	meq/100 g 6.5 7.8 7.3 5.9 6.0 6.7	3.3 2.4 2.4 1.6 1.4	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	5ALa 8H4,0Ac 7.6 8.2 7.3 6.0 6.6							3.5 4.1 3.4 3.4 2.6 2.6		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NSLOAC CEC Pet 86 95 100 98 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53	4.9 6.1 5.5 4.4 4.7 3.6 3.9	1.4 1.5 1.6 1.3 1.6 1.8 1.6	tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a 8km Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53	4.9 6.1 5.5 4.4 4.7 3.6 3.9	1.4 1.5 1.6 1.3 1.6 1.8 1.6	tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53 53-60	4.9 6.1 5.5 4.4 4.2 4.7 3.6 3.9 2.9	1.4 1.5 1.6 1.3 1.6 1.8 1.6	tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53	4.9 6.1 5.5 4.4 4.2 4.7 3.6 3.9 2.9	1.4 1.5 1.6 1.3 1.6 1.8 1.6	tr. tr. tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53 53-60	4.9 6.1 5.5 4.4 4.2 4.7 3.6 3.9 2.9	1.4 1.5 1.6 1.3 1.6 1.8 1.6 1.6 1.3	tr. tr. tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53 53-60	4.9 6.1 5.5 4.4 4.2 4.7 3.6 3.9 2.9	1.4 1.5 1.6 1.3 1.6 1.8 1.6 1.6 1.3	tr. tr. tr. tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53 53-60	4.9 6.1 5.5 4.4 4.2 4.7 3.6 3.9 2.9 Ratios	1.4 1.5 1.6 1.3 1.6 1.8 1.6 1.6 1.3	tr. tr. tr. tr. tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53 53-60  Depth (in.)	4.9 6.1 5.5 4.4 4.2 4.7 3.6 3.9 2.9 Ratios	1.4 1.5 1.6 1.3 1.6 1.8 1.6 1.6 1.3	tr. tr. tr. tr. tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53 53-60  Depth (In.)	L.9 6.1 5.5 4.4 4.2 4.7 3.6 3.9 2.9 Ratios	1.4 1.5 1.6 1.3 1.6 1.8 1.6 1.6 1.3	tr. tr. tr. tr. tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53 53-60  Depth (In.)	4.9 6.1 5.5 4.4 4.2 4.7 3.6 3.9 2.9 Ratios	1.4 1.5 1.6 1.3 1.6 1.8 1.6 1.6 1.3	tr. tr. tr. tr. tr. tr. tr. tr. tr. cr. tr. tr. tr. tr. tr. tr. tr. tr. tr. t	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53 53-60  Depth (In.)  0-6 6-11 11-14 14-18 18-28 28-34	Ratios  Ratios  Ratios  0.89 0.94 0.84 0.86	1.4 1.5 1.6 1.3 1.6 1.8 1.6 1.6 1.3	tr. tr. tr. tr. tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 45-53 53-60  Depth (In.)  0-6 6-11 11-14 14-18 18-28 28-34 34-45	L.9 6.1 5.5 4.4 4.2 4.7 3.6 3.9 2.9 Ratios WHA, OAC CEC 0.89 0.90 0.94 0.84 0.84 0.72	1.4 1.5 1.6 1.3 1.6 1.8 1.6 1.6 1.3	6F2a Ne tr. tr. tr. tr. tr. tr. tr. tr. tr. cr. tr. cr. tr. tr. tr. tr. tr. tr. tr. tr. tr. t	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100
0-6 6-11 11-14 14-18 18-28 28-34 34-45 45-53 53-60  Depth (In.)  0-6 6-11 11-14 14-18 18-28 28-34	Ratios  Ratios  Ratios  0.89 0.94 0.84 0.86	1.4 1.5 1.6 1.3 1.6 1.8 1.6 1.6 1.3	tr. tr. tr. tr. tr. tr. tr. tr. tr. tr.	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	meg/100 g 6.5 7.8 7.3 5.9 6.0 6.7 5.4 5.7	Ext. Acid- ity 3.3 2.4 2.4 1.6 1.4 1.6	5A3a Sum Cat- ions 9.8 10.2 9.7 7.5 7.4 8.3 6.8 6.9	7.6 8.2 7.3 6.0 6.6 5.0							Ca/Mg 3.5 4.1 3.4 2.6 2.6 2.2 2.4		503 Sum Cat- ions Pot. 66 76 75 79 81 81	501 NBLOAC CEC Pet 86 95 100 98 100 102 108 100

Soil type: Thurman sandy loam

Soil No.: S59Nebr-26-5

Location: 1000 feet south and 80 feet west of north 1/4 corner, Sec. 22, T28N, N4E, Dixon County, Nebraska; North-

east Nebraska Experimental Farm, 2 miles east of Concord, Nebraska.

Physiography: Gently rolling sand-loess hills area. Deep sand over Peorian loess.

Relief: B slope; single convex slope.

Slope: 3 to 4 percent northwest to west slope.

Parent material: Eolian sand. Drainage: Well drained.

Permeability: Moderately rapid. Land use: Cultivated; in sorghum.

Described by: Herbert L. Kollmorgen and John Elder, November 3, 1959.

Horizon and Lincoln Lab. Number

Alp 12405

12412

O to 6 inches. Very dark brown (10YR 2/2 moist) sandy loam; weak medium and fine subangular blocky breaking to fine and very fine crumb; very friable moist; no effervescence; abrupt smooth lower boundary.

6 to 11 inches. Very dark brown (10TR 2/2 moist) fine sandy loam or loam; weak coarse subangular blocky breaking to fine and very fine crumb; very friable moist; no effervescence; clear smooth lower boundary.

A3 11 to 14 inches. Very dark grayish brown to dark brown (10YR 3/2.5 moist) sandy loam; weak fine and 12407 medium subangular blocky to single grained; very friable moist; no effervescence; clear smooth lower boundary.

AC 14 to 18 inches. Dark brown (10YR 3/3 moist) sandy leam; weak coarse and medium subangular blocky to 12408 single grained; very friable moist; no effervescence; clear smooth lower boundary.

[] 18 to 28 inches. Dark brown (10YR 4/3 moist) sandy lows: weak wery coarse submembler blocky to single

C2 28 to 34 inches. Dark brown (10YR 4/3 moist) sandy loam; weak coarse subangular blocky to single 12410 grained; very friable moist; no effervescence; diffuse lower boundary.

C3 34 to 45 inches. Dark brown (10YR 4/3 moist) sandy loam; single grained; very friable moist; no effervescence; diffuse smooth lower boundary.

45 to 53 inches. Bark brown (10YR 4/3 moist) sandy loam; weak coarse and medium subangular blocky to weak fine and fine subangular blocky; very friable or loose moist; no effervescence; gradual smooth lower boundary.

C5 53 to 60 inches. Yellowish brown (10YR 5/4 moist) loamy sand; single grained and loose; no efferves-12413 cence.

Borings were made below the pit to 120 inches. Colors were not checked in detail but varied from light brownish gray to pale brown and light yellowish brown. Textures were recorded as follows:

60 to 81 inches. Light fine sandy loam or lossy fine sand.

81 to 92 inches. Fine sandy loams.

92 to 120 inches. Loggy sands or sands.

SOIL Thurman loamy fine sand

SOIL Nos. SCONebr-70-1 LOCATION Pierce County, Nebraska

SOIL SURVEY LABORATORY Incoln, Nebraska

\_\_\_ LAB. Nos. <u>13478-13483</u>

December 1964

		1Rla						Size clas	s and parts	cle diamet	er (mm)	3Al '						
			Totai					Sand		S	ilt					Coar	se fragme	nts
	Horizon	Sand	Şıft	Clay	Véry	Coarse	Medium	Fine	Very fine		Int. 111	int. II				2A2	2A2	
Depth (in.)	MOTIZON			( = 0.002)	coarse					0.05.00			(2-0 1)			<b>&gt;-</b> 2	2 - 19	19-76
(,,,,		(2-0 03)	(0.05- 0 002)	( - 0.002)	(2-1)	11-0 31	(0.5-0.25)	(0.23-0.1)	(0 1-0.03)	0 05-0 0	(0.02- (0.002)	(0.2-0.02)	(2-0 1)				Po	t of
_		-	-			Pc	t, of << 2 !	mm								Pct.	¥	6mm
0-8	Alp	88.8	5.8	5.4	1.0	8.3	19.2	51.6	8.7	4.3	1.5	36.4	80.1			-		
8-15 15-20	Ala	78.1	13.1	8.8 8.2	0.3	5.5	17.4	46.7 48.8	8.2	7.8 6.6	5.3 3.6	36.2 33.6 24.5	69.9 74.4			l -	-	
15-20	AC	81.6	10.2	8.2	0.2	5.5 5.2	20.2	48.8	7.2	6.6	3.6	33.6	74.4			L_ <del>-</del>		
20-29	Cl	89.0	4.2	6.8	0.4	7.0	26.5	50.5	4.6	2.2	2.0	24.5	84.4			<del>-</del> -	_ <b>-</b>	
29-40	C22	88.4	4.7	6.9	0.8	6.4	20.2	53.5	7.5	2.1	2.6	32.2	80.9			-	_ ا	
40-60	C3	93.0	2.6	4.4	0.2	4.4	17.8	62.8	7.8	1.8	0.8	37.9	85.2			-	l -	_
								1										I —
											<b></b> -							
	L 642-	Cm1-	<u> </u>	1	4 ma	600.0	<u> </u>	<u> </u>			<u> </u>						<u> </u>	
1	6А1а	6вла	1	l	6Ele	6Cla Ext.	4Ala	Bulk densit	<del>,</del>		4B4	ater conte					pН	8Cla
Depth	Organic	Nitrogen	C/N		Carbonate	Iron	+***				<del>'+5'+</del>	1/10	4,552					هساد
(In )	carbon				as CaCO <sub>3</sub>		Field-				E4 - 14		75					(1:1)
							riein- State	1			Field- State		15- Dom					
1			1	l		Fe <sub>2</sub> 03		l .			1 .							H <sup>5</sup> 0
	Pct	Pct.		<u> </u>	Pct.		g/cc	g/cc	g/cc		Pct	Pct.	Pct.					
0-8	0.36	0.043		l		0.2		l			l	ا ہے۔ ا	2.2					6.1
8-15	0.60	0.063		l		0.3	1.58	l			10.0	12.6	4.2					6.1
15-20	0.37	0.044	8	<b>_</b>	<b> </b>	0.3	-	<b>-</b>			1		3.6	<b>├</b>				6.3
20-29	0.18	0.054	1			0.3	_ ـ ـ ا				l	اما	2.8					6.5
29-40	0.14					0.2	1.66				7.0	8.1	3.1					6.5
40-60	0.05	<del>                                     </del>	<u> </u>			0.1	_	<del> </del> -					2.0					6.6
				97.0		60710	Cat.Ex								803		Base sat	
											1				O DK		Rese sat	
	Commi		le bases 5								1				3		200	E 477
Depth	6N2b	602b	6P2a	602a			5A3a								5		503	501
Depth (In )		602ъ	6P2a	602a	Shim	Exct.	5A3a. Sum	5Ala						_			Stam	-
	6N2b ca				Sunz	Ext. Acid-	5A3a Sum Cat-	5Ala NE <sub>la</sub> OAc						C	a/Mg		Sum Cat-	ŒLOA¢
		602ъ	6P2a	6 <b>92а.</b> к	_	Exct.	5A3a. Sum	5Ala NE <sub>la</sub> OAc						C			Sum Cat- ions	ŒLOA¢
(ln)	Ca -	602b Mg	6P28.	6 <b>92а.</b> к	_	Ext. Acid- ity	5A3a Sum Cat- ions	5Ala NH <sub>ų</sub> OAc									Sum Cat- ions	CEC
(In ) 0-8	Ca 2.9	602b Mg	6P2a Na tr.	6 <b>92а.</b> к	_	Ext. Acid- ity	5A3a Sum Cat- ions	5Ala NH <sub>l</sub> OAc									Sum Cat- ions	UELOAC CEC Pote
0-8 8-15	€ 2.9 5.3	602b Mg 0.4 1.2	6P2a Na tr. tr.	6 <b>92а.</b> к	_	Ext. Acid- ity 2.5 3.2	5A3a Sum Cat- ions	5Ala NE <sub>4</sub> OAc 4.1 7.7							:a/Mg 4.4		Sum Cat- ions Pet 5 59 68 72	UELOAC CEC Pote
0-8 8-15 15-20	2.9 5.3 4.8	602b Mg 0.4 1.2 1.3	6P2a Na tr. tr.	692a K 0.3 0.2 0.2	<sub>тыц/100 д</sub> 3.6 6.7 6.3	Ext. Acid- ity 2.5 3.2 2.5	5A3a Sum Cat- ions 6.1 9.9 8.8	5ALA NE <sub>1</sub> OAc 4.1 7.7 6.8						C	2a/Mg 4.4 3.7		Sum Cat- ions Pet 5 59 68 72	UELOAC CEC Pote
0-8 8-15 15-20 20-29	2.9 5.3 4.8	602b Mg 0.4 1.2 1.3	tr. tr. tr.	692a K 0.3 0.2 0.2 0.1	3.6 3.6 6.7 6.3	Ext. Acid- ity 2.5 3.2 2.5	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9	5ALA NEL OAC 4.1 7.7 6.8 5.4			_			C	4.4 3.7 3.6		Sum Cat- ions Pet 5 59 68 72	UELOAC CEC Pote
0-8 8-15 15-20	2.9 5.3 4.8	602b Mg 0.4 1.2 1.3	6P2a Na tr. tr.	692a K 0.3 0.2 0.2	<sub>тыц/100 д</sub> 3.6 6.7 6.3	Ext. Acid- ity 2.5 3.2 2.5	5A3a Sum Cat- ions 6.1 9.9 8.8	5ALA NE <sub>1</sub> OAc 4.1 7.7 6.8							2a/Mg 4.4 3.7		Sum Cat- ions	CEC
0-8 8-15 15-20 20-29 29-40	2.9 5.3 4.8 4.0	602b Mg 1.2 1.3 1.1 1.3	tr. tr. tr. tr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6	5Ala NE <sub>1</sub> OAc 4.1 7.7 6.8 5.4 5.1						c	4.4 3.7 3.6		Sum Cat- ions Pet 2 59 68 72 75 74	UELOAC CEC Pote
0-8 8-15 15-20 20-29 29-40	2.9 5.3 4.8 4.0	0.4 1.2 1.3 1.1 1.3 0.7	br. tr. tr. tr. tr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6	5Ala NE <sub>1</sub> OAc 4.1 7.7 6.8 5.4 5.1						c	4.4 3.7 3.6		Sum Cat- ions Pet 2 59 68 72 75 74	UELOAC CEC Pote
0-8 8-15 15-20 20-29 29-40 40-60	2.9 5.3 4.8 4.0 3.5 1.8	0.4 1.2 1.3 1.1 1.3 0.7	br. tr. tr. tr. tr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.0	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6 3.6	5Ala NH, OAc 4.1 7.7 6.8 5.4 5.1 3.0	norizo	ns has	relat	ively	low ca	tion ex	4.4 3.7 3.6 2.7	3	Sum Cat- ions Pet 2 59 68 72 75 74	UELOAC CEC Pote
0-8 8-15 35-20 20-29 29-40 40-60	2.9 5.3 4.8 4.0 3.5 1.8	0.4 1.2 1.3 1.1 1.3 0.7	tr. tr. tr. tr. tr. tr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.0	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6 3.6	5Ala NH, OAc 4.1 7.7 6.8 5.4 5.1 3.0							4.4 3.7 3.6 2.7		Sum Cat- ions Pet 2 59 68 72 75 74	UELOAC CEC Pote
0-8 8-15 15-20 20-29 29-40 40-60	2.9 5.3 4.8 4.0 3.5 1.8	0.4 1.2 1.3 1.1 1.3 0.7	tr. tr. tr. tr. tr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.0	5A3a Sum Cat- ions 5.1 9.9 8.8 6.9 6.6 3.6	5Ala NH, OAc 4.1 7.7 6.8 5.4 5.1 3.0	cation of l	n exc ase s	hange aturat:	capaci ion in	ty dec: crease:	tion ex reases,	4.4 3.7 3.6 2.7		Sum Cat- ions Pet 2 59 68 72 75 74	UELOAC CEC Pote
0-8 8-15 35-20 20-29 29-40 40-60	2.9 5.3 4.8 4.0 3.5 1.8	0.4 1.2 1.3 1.1 1.3 0.7	tr. tr. tr. tr. tr. tr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.7 1.0	5A3a Sum Cat- ions 6.1 9.8 8.8 6.9 6.6 3.6	5Ala NH, CAc 4.1 7.7 6.8 5.4 5.1 3.0 more ity. A	s cation or of l re omit	n exc ase s ted f	hange aturat: rom the	capaci ion in e sum (	ty dec: crease: of base	tion ex reases, s. Tra	4.4 3.7 3.6 2.7	7	Sum Cat- ions Pet 2 59 68 72 75 74	UELOAC CEC Pote
0-8 8-15 15-20 20-29 29-40 40-60	2.9 5.3 4.8 4.0 3.5 1.8	0.4 1.2 1.3 1.1 1.3 0.7	tr. tr. tr. tr. tr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.0	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6 3.6	5Ala NH, OAc 4.1 7.7 6.8 5.4 5.1 3.0 more ity. Ave errities ac c value	cation of lor of	on exc case s ted f is omi	hange aturat: rom the ssion	capaci ion in e sum contri	ty deci crease of base butes	tion ex reases,	4.4 3.7 3.6 2.7	7	Sum Cat- ions Pet 2 59 68 72 75 74	UELOAC CEC Pote
0-8 8-15 15-20 20-29-40 40-60	2.9 5.3 1.8 1.0 3.5 1.8 Ratios	0.4 1.2 1.3 1.1 1.3 0.7	tr. tr. tr. tr. tr. tr. tr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.0	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6 3.6	5Ala NH, OAc 4.1 7.7 6.8 5.4 5.1 3.0 more ity. Ave errities ac c value	cation of lor of	on exc case s ted f is omi	hange aturat: rom the	capaci ion in e sum contri	ty deci crease of base butes	tion ex reases, s. Tra	4.4 3.7 3.6 2.7	7	Sum Cat- ions Pet 2 59 68 72 75 74	CEC Pote
0-8 8-15-20 20-29-40 40-60	2.9 5.3 4.8 4.0 3.5 1.8 Ratios	0.4 1.2 1.3 1.1 1.3 0.7	tr. tr. tr. tr. tr. tr. tr. tr. cr. tr. cr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.0	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6 3.6	5Ala NH, OAc 4.1 7.7 6.8 5.4 5.1 3.0 more ity. Ave errities ac c value	cation of lor of	on exc case s ted f is omi	hange aturat: rom the ssion	capaci ion in e sum contri	ty deci crease of base butes	tion ex reases, s. Tra	4.4 3.7 3.6 2.7	7	Sum Cat- ions Pet 2 59 68 72 75 74	CEC Pote 88
0-8 8-15 15-20 20-29 29-40 40-60	2.9 5.3 4.8 4.0 3.5 1.8 Ratios	0.4 1.2 1.3 1.1 1.3 0.7	tr. tr. tr. tr. tr. tr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.0	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6 3.6	5Ala NH, OAc 4.1 7.7 6.8 5.4 5.1 3.0 more ity. Ave errities ac c value	cation of lor of	on exc case s ted f is omi	hange aturat: rom the ssion	capaci ion in e sum contri	ty deci crease of base butes	tion ex reases, s. Tra	4.4 3.7 3.6 2.7	7	Sum Cat- ions Pet 2 59 68 72 75 74	CEC Pote
0-8 8-15-20 20-29 29-40 40-60 Depth (In.)	2.9 5.3 4.8 4.0 3.5 1.8 NH, OAC CEC 0.76 0.88 0.83 0.79	0.4 1.2 1.3 1.1 1.3 0.7	tr. tr. tr. tr. tr. tr. tr. cr. tr. cr. tr. tr. tr. tr. tr. tr. tr. tr. tr. t	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.0	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6 3.6	5Ala NH, OAc 4.1 7.7 6.8 5.4 5.1 3.0 more ity. Ave errities ac c value	cation of lor of	on exc case s ted f is omi	hange aturat: rom the ssion	capaci ion in e sum contri	ty deci crease of base butes	tion ex reases, s. Tra	4.4 3.7 3.6 2.7	7	Sum Cat- ions Pet 2 59 68 72 75 74	UELOAC CEC Pote
0-8 8-15-20 20-29-40 40-60 Depth (In.)	2.9 5.3 4.8 4.0 3.5 1.8 Ratios	0.4 1.2 1.3 1.1 1.3 0.7	tr. tr. tr. tr. tr. tr. cr. tr. cr. tr. tr. tr. tr. tr. tr. tr. tr. tr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.0	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6 3.6	5Ala NH, OAc 4.1 7.7 6.8 5.4 5.1 3.0 more ity. Ave errities ac c value	cation of lor of	on exc case s ted f is omi	hange aturat: rom the ssion	capaci ion in e sum contri	ty deci crease of base butes	tion ex reases, s. Tra	4.4 3.7 3.6 2.7	7	Sum Cat- ions Pet 2 59 68 72 75 74	UELOAC CEC Pote
0-8 8-15-20 20-29 29-40 40-60 Depth (In.)	2.9 5.3 4.8 4.0 3.5 1.8 NH, OAC CEC 0.76 0.88 0.83 0.79	0.4 1.2 1.3 1.1 1.3 0.7	tr. tr. tr. tr. tr. tr. tr. cr. tr. cr. tr. tr. tr. tr. tr. tr. tr. tr. tr. t	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.0	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6 3.6	5Ala NH, OAc 4.1 7.7 6.8 5.4 5.1 3.0 more ity. Ave errities ac c value	cation of lor of	on exc case s ted f is omi	hange aturat: rom the ssion	capaci ion in e sum contri	ty deci crease of base butes	tion ex reases, s. Tra	4.4 3.7 3.6 2.7	7	Sum Cat- ions Pet 2 59 68 72 75 74	UELOAC CEC Pote
0-8 8-15-20 20-29-40 40-60 Depth (In.)	2.9 5.3 4.8 4.0 3.5 1.8 NH, OAC CEC 0.76 0.88 0.83 0.79	0.4 1.2 1.3 1.1 1.3 0.7	tr. tr. tr. tr. tr. tr. cr. tr. cr. tr. tr. tr. tr. tr. tr. tr. tr. tr.	692a K 0.3 0.2 0.2 0.1 0.1	3.6 3.7 6.7 5.2 4.9	Ext. Acid- ity 2.5 3.2 2.5 1.7 1.0	5A3a Sum Cat- ions 6.1 9.9 8.8 6.9 6.6 3.6	5Ala NH, OAc 4.1 7.7 6.8 5.4 5.1 3.0 more ity. Ave errities ac c value	cation of lor of	on exc case s ted f is omi	hange aturat: rom the ssion	capaci ion in e sum contri	ty deci crease of base butes	tion ex reases, s. Tra	4.4 3.7 3.6 2.7	7	Sum Cat- ions Pet 2 59 68 72 75 74	UELOAC CEC Pote

Soil type: Thurman lossy fine sand Soil No.: S60Nebr-70-1

Soil No.: S60Mebr-70-1 Location: 1700 feet north and 210 feet west of southeast corner, Sec. 22, T27N, R3W, Plerce County, Mebraska.

Relief: Gentle slope.

Physiography: Undulating sandy upland. Slope: 2 to 3 percent; south slope. Parent material: Bolian sand.

Drainage: Well drained. Permeability: Moderately rapid.

Land use: Cropland; in corn, 1960.
Described by: Herbert L. Kollmorgen and John Kider, June 1960.

Horizon and Lincoln Lab. Number

0 to 8 inches. Dark gray to dark grayish brown (10YR 4/1.5 moist) loamy fine sand; single grained Alp 13478

structure; loose moist; abrupt smooth boundary.

8 to 15 inches. Very dark gray (10YR 3/1 moist) fine sandy loam; weak very fine crumb breaking to A12 13479 single grained structure; very friable moist; clear wavy boundary.

15 to 20 inches. Very dark grayish brown to dark grayish brown (10YR 3.5/2 moist) fine sandy loss; weak very fine crumb breaking to single grained structure; very friable moist; clear wavy boundary. AC 13480

20 to 29 inches. Dark grayish brown (10YR 4/2 moist) light fine sandy loam; single grained structure; C1 13481

loose moist; gradual wavy boundary.

29 to 40 inches. Dark grayish brown to brown (10YR 4/2.5 moist) loamy fine sand; single grain struc-C2 13482

ture; loose moist; gradual wavy boundary.

40 to 72 inches. Sampled 40 to 60 inches. Brown (10YR 5/3 moist) fine sand; single grain structure; C3 13483

loose moist.

OIL SURVEY LABORATORY Lincoln, Nebr. April 1963

SOIL TYPE Tripp LOCATION Scotts Bluff County, Nebrasks
fine sandy loam

SOIL NOS. S61Nebr-79-2 LAB. NOS. 15683-15690

		lRla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent)	3AI		
PEPTH NICHES	MORIZON	VERY COARSE SAND 21	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0, 10	VERY FINE SAMO G. 10-0,05	<b>54LT</b> 0.05-0.002	CLAY < 0.002	<b>9. 2-0</b> .02	062-0662	2A2 > 2 <19mm)	TEXTURA
0-9	Αp	0.6	3.0	4.9	21.0	35.8	23.2	11.5	65.6	6.6	1	vfsl
9-14	All	0.4	3.0	4.9	19.3		24.1	11.3			Tr.	visl
4-24	A12	0.2	3.9	5.7	20.4		23.0	10.8			1	vfsl
4-35	Cllca	0.4	3.7a	5.8a				9.1		7.0	Tr.	vfsl
35-46	Cl2ca	0.2	3.2a	5.0a	17.78			9.6			Tr.	vfsl
16-54	C21ca	0.1	0.6a	1.28	5.5€			10.5	68.5	17.4	Tr.	<b>sil</b>
34-66	C22ca	Tr.	0.6a	1.0a	7.1			7.2	77.8	11.6	Tr.	1/vtsl
56-74	c3	0.2	2.9a	4.9a	19.1	40.4a	25.6	6.9	70.9	6.7	1	vfsl
8cla	Extract	Organ	ic Ma	ter	; ************************************		k Densi.	ÿ	Mannama	Moist	ire Re	tent10
	able	6Ala	6Bla	ĺ	<u> </u>			<i>'</i>		4B11		4.7
Hq	Iron	o.c.	<b>J</b> V	C/N	Field	Moist	30	Cm.	A.D.	3/30/tm .		15-Ata
- ·	as Fe			′	4B4	4Ala	4 <b>3</b> 3	4Alc	4A1b	Pieces		Sieved
1:1	1/6	<b>%</b>	1/2		% M.	g/cc	% M.	g/cc	g/cc	1/2	L	J
7.7			0.058	9	,			į		20.1		6.2
7.5		0.38	0.047	8	Ì			į	į	22.0		6.6

Soil type: Tripp fine sandy loam, loamy substratum soil No. - Rollson-70-2

Parent material: Alluvium. Physiography: North Platte Valley high terrace. Relief: 0 to 2 feet. Drainage: Somewhat excessive. Elevation: 4,100 feet. Ground water: Deep. Slope: Less than 1 percent. Moisture: Moist. Root distribution: Numerous to 9 inches, plentiful to 46 inches, none below. Erosion: Slight. Permonbility: Moderately rapid. Land use: Irrigated corn. Date: August 28, 1961. Described by: Donald A. Yost. Horizon and Lincoln Lab. Number 0 to 9 inches. Light brownish gray (10YR 6/2 dry) fine sandy loam, dark grayish brown (10YR 4/2) when moist; weak fine and medium granular structure; soft when dry, very friable when moist; noncalcareous; pH (paste) 7.8; pH (2:1) 7.8; nonsaline; abrupt smooth boundary. 15683 9 to 14 inches. Color, texture and consistence as in above horizon. Weak coarse blocky structure; noncalcareous; pH (paste) 7.6; pH (2:1) 7.8; nonsaline; clear smooth boundary. All. 15684 14 to 24 inches. Color, texture and consistence as in above horizon; massive (structureless); noncal-A12

o to 9 inches. Inght brownish gray (101x 6/2 dry) fine sandy foun, dark graysh brown (101x 4/2)

when moist; weak fine and medium granular structure; soft when dry, very friable when moist; noncalcareous; pH (paste) 7.6; pH (2:1) 7.8; nonsaline; abrupt smooth boundary.

All

9 to 14 inches. Color, texture and consistence as in above horizon. Weak coarse blocky structure;
noncalcareous; pH (paste) 7.6; pH (2:1) 7.8; nonsaline; clear smooth boundary.

Al2

14 to 24 inches. Color, texture and consistence as in above horizon; massive (structureless); noncalcareous; pH (paste) 7.6; pH (2:1) 8.1; nonsaline; abrupt wavy boundary.

Clica

24 to 35 inches. Light gray (101x 7/2 dry) fine sandy loam, grayish brown (101x 5/2) when moist; weak
medium blocky structure; soft when dry, very friable when moist; very strongly calcareous; pH (paste)
7.8; pH (2:1) 8.1; nonsaline; clear wavy boundary.

Clica

35 to 46 inches. Soil characteristics are as given in above horizon. This is an arbitrary separation
made because of the thickness of the material between 24 and 46 inches; pH (paste) 7.9; pH (2:1) 8.0;
nonsaline; abrupt wavy boundary.

Clica

46 to 54 inches. White (101x 8/1 dry) silt loam, light gray (101x 7/2) when moist; moderate medium subangular blocky structure; hard when dry, friable when moist; very strongly calcareous; pH (paste) 7.8;

C22cs 54 to 66 inches. White (10YR 8/2 dry) very fine sandy loam, light brownish gray (10YR 6/2) when moist; 15689 weak medium subangular blocky structure; soft when dry, very friable when moist; very strongly calcareous; pH (paste) 7.8; pH (2:1) 7.6; nonsaline; clear wavy boundary.

pH (2:1) 7.8; nonsaline; clear wavy boundary.

66 to 74+ inches. Very pale brown (10YR 8/3 dry) fine sandy loam, brown (10YR 5/3) when moist; weak medium subangular blocky structure; soft when dry, very friable when moist; strongly calcareous; pH (paste) 7.8; pH (2:1) 7.9; nonsaline.

Note: The profile herein described is modal for this particular phase and for the soils as they occur in Scotts Bluff County. The lower boundary of the Cl2ca horizon is tongued through the horizon below. It was observed that roots did not penetrate the C21ca horizon. A 3-inch Krotovina was noted in the lowest horizon sampled. Horizons Ap. Cl1ca, and C21ca were sampled for the Buresu of Public Roads. The very fine sands include approximately 30 percent quarts, 20 percent identified feldspar, 30 percent highly altered grains, and 15 percent glass shards. The pattern of feldspar alteration changes little with depth. Some grains are thought to be altered glass. The index of refraction of these grains is less than that of clove oil. A minor portion of the glass appears to be obsedian.

SOIL TYPE Tripp

LOCATION Scotts Bluff County, Nebraska

fine sandy loam

SOIL NOS. S61Nebr-79-1 LAB. NOS. 15675-15682

arithistica referit	-11.6+11.eb+	1Bla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent)	3A1	**************************************	jage di biografia i versusera
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURAL CLASS
		2.1	1-0.5		0.25-0.10		0.05-0.002	< 0,002		G02-0002		<u> </u>
0-9	Alp	0.7	2.1	5.4	23.9	39.9	18.8	9.2	69.0			vfsl
9-17	Al	0.6	2.2	6.4	24.9		20.9	9.0		6.5	Tr.	vfsl
17-26	AÇ	0.7	1.9	5.6	26.2	36.9	18.6	10.1			1	vfsl
26-37	Clea	0.3	2.2	5.5	25.6	37.5	20.3	8.6	67.7		1	vfal
37-41	C21ca	0.3	1.3a	3.6a				8.7			1	vfsl
41-53	C22ca	0.1	1.6a	3.4a				8.6		10.9	1	vfsl
53-63	C31	0.5	1.7a	3.3a				7.9		11.3	2	vfsl
63-73+	C32	0.9a	1.6e	3.4a	16.0	. 38.3a	33.0	6.8	72.0	9.4	1	vfsl
8Cla	6Cla	Ore	anic M	atter	*********		k Densi	ty	-44446444441144314	Moist	re Re	tention
	Ext.	6Ala	6Bla	1		: •				4B1b	T	14B6
pН	Iron	0.0.	N	C/N	Field	Moist	30	Cm.	A.D.	1/10-Atm		15-Atm.
	as Fe	<b>5.</b>		0/14	4B4		4B3	4A1c		Pieces		Sieved
1:1	5	<b>5</b>	%		<b>%</b> М. 6.8	- <u>g/cc</u> 1.68	\$ M 18.1	-g/cc 1.61	-g/cc 1.68	19.1		5.4
7.3	0.4		0.063	9							į	
7.2	0.4		0.045	8	10.9	1.59	19.8	1.56		18.4		5.6
7.4	0.4	-	0.041	7	9.7	1.46	16.7	1.42	1,46	18.4		5.8
7.8	0,4	0.25										5.9
7.8	0.4	0.18	•		!		20.0		7 04			7.8
7.8	0.3	0.17			17.7	1.32	32.0	1.30	1.34	30.3	Ī	8.4
7.8	0.3	0.12			i							7.4
7.9	0.4	0.10							ł	1	Ì	6.8
									ļ			
5Ala	***************************************	FYTRAC	TABLE	CATIONS	581a	Base	Sat.	****************	) 198611111991111	8 <b>D</b> I	Carb	opate
CATION	L	602b	бна	6P2a	602a	On	on Sum	Ratio	os to	Clay	as C	-
EXCHANGE		3023	المستب		3424	NH)LOAc	Bases	15-	Cat.	Γ	Whole	Clay-
CAPACITY	<u>Co</u>	<u>Ma</u>	! H		<u>. K</u>	- an -	Ļ	<u>                                   </u>	<u> 1</u>	<u>L</u>	laa.	Last

Soil type: Tripp fine sandy loam, loamy substratum

Soil No.: 961Nebr-79-1 attends armed Gos Or MOSH DEEK Goatte Dings County Nobesak

Parent material: Alluvium. Physiography: North Platte Valley terrace.

Relief: 0 to 2 feet.

Brainage: Somewhat excessive.

Elevation: 4,130 feet.

Ground water: Very deep; farm operator states ground water is located in fissures of the underlying Brule formation. Slope: Less than 1 percent.

Moisture: Moist. Erosion: Slight.

Root distribution: Plentiful to 9 inches; few to 73 inches.

Permeability: Moderately rapid.

land use: Irrigated corn. 200 pounds of 21-53-0 fertilizer were applied to each acre of the soil early in the spring. In addition, barnyard manure at the rate of 10 spreader loads per acre was applied and plowed under-

Described by: Donald A. Yost.

Date: August 28, 1961.

Horizon and Lincoln Lab. Number

0 to 9 inches. Grayish brown (10YR 5.5/2 dry) fine sandy loam, dark grayish brown (10YR 4/2) when Alp 15675 moist; weak fine granular structure; soft when dry, very friable when moist; noncalcareous; abrupt smooth boundary.

9 to 17 inches. Color, texture and consistence as in above horizon; weak medium prismatic structure; AI 15676 noncalcareous; gradual smooth boundary.

17 to 26 inches. Light brownish gray (10YR 6/2 dry) fine sandy loam, dark grayish brown (10YR 4/2) when 15677 moist; weak medium prismatic structure; soft when dry, very friable when moist; noncalcareous; clear wavy boundary.

26 to 37 inches. Light gray (10YR 6.5/2 dry) fine sandy loam, grayish brown (10YR 4.5/2) when moist; Clea 15678 massive; soft when dry, very friable when moist; slightly calcareous; clear wavy boundary.

37 to 41 inches. Light gray (10YR 7/2 dry) very fine sandy loam, grayish brown (10YR 5/2) when moist; weak fine subangular blocky structure; soft when dry, very friable when moist; very strongly calcareous; C21ca 15679 clear wavy boundary.

41 to 53 inches. White (10YR 8/2 dry) very fine sandy loam, pale brown (10YR 6/2.5) when moist; weak COOCA fine subangular blocky structure; slightly hard when dry, friable when moist; very strongly calcareous; 15680 gradual wavy boundary.

53 to 63 inches. Very pale brown (10YR 8/3 dry) fine sandy loam, brown (10YR 5/3) when moist; weak fine 15681 subangular blocky structure; soft when dry, very friable when moist; very strongly calcareous; gradual wavy boundary.

63 to 73+ inches. This is an arbitrary separation made because of the unusual thickness of the material 15682 between 53 and 73 inches. Soil characteristics are as given in the horizon above.

Note: Krotovinas, 2 to 3 inches in diameter, are present at depths of 30 to 42 inches. Mycelial lime is evident in the lower two horizons. Depth to violently effervescent lime varies from 26 inches to 43 inches on north wall of pit. Farm operator states mixed sand and gravel are present at a depth of about 15 feet at this location. Gravel The very fine sands include approximately 30 percent quartz, 20 percent identified feldspar, 30 percent highly altered grains, and 15 percent glass shards. The pattern of feldspar alteration changes little with depth. Some grains are thought to be altered glass. The index of refraction of these grains is less than that of clove oil. A minor portion of the glass appears to be obsedian. Accessory minerals in order of decreasing abundance are hornblence, pyroxene (subrounded, greenish, perhaps diopside), epidote-zoisite, zircon, garnet, and mica. A few grains of primary carbonate occur in the lower part of the profile. (Method 7El)

SOIL SURVEY LABORATORY Mandan, N. Dak. LOCATION Scotts Bluff County, Nebraska OIL TYPE Tripp loam SOIL NOS. <u>\$53Nebr-79-6-(1-7)</u> LAB. NOS. <u>1973-1979</u> PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 2A2 MORIZON COARSE COARSE MEDIUM FINE SAND SAND CLAY > 2 0.5-0.25 0.25-0.10 0.10-0.05 0.05-0.002 < 0.002 0.2-0.02 0.02-0.002 < 19mm 0-4 Alpl 2.5 5.4 4.7 9.2 33.6 30.7 13.9 61.6 8.0 4-11 Alpe 2.4 5.6 5.0 9.2 32.7 31 4 13.7 60.6 8.8

Soil type: Tripp loam

Soil No .: 553Nebr-79-6-(1-8)

Date sampled: October 2, 1953
Location: 0.3 mile east, 125 feet north of SW corner Sec. 12, T22N R54W, Scotts Bluff County, Nebraska.

Topographic position: High terrace, profile developed in loess over gravels of middle Pleistocene age. Relief: Slight, sample site on smooth slope less than 1 percent, flat.

Described by: John Elder.

Ground water: Many feet below surface.

Root distribution: Normal above 27 inches. 27-37 inch horizon had a limiting effect. Roots penetrate this horizon

but growth is restricted.

Land use: Irrigated from ditch--beans 1953. Harvested prior to sampling, no yield figure available, but adjacent areas indicate high yields of corn, sugar beets, beans and alfalfa can be expected on areas having profiles similar to the site sampled.

Mundan

Lab. No.

1077 A7-3 Only inches. Greates homen (1008 5/2 dray) to very dark greates homen (1008 3/2 mpist) loss. Modern

ate very coarse subangular blocky to moderate fine and very fine granular, hard dry, friable moist, noncalcareous, a few medium and coarse gravel scattered on surface. Clear, smooth boundary. 1974 Alp2 4-11 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) loss. Weak coarse subangular blocky to fine and very fine moderate granular, hard dry, friable moist, crushes to slightly lighter color, noncalcareous. Abrupt, smooth boundary. 11-16 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silty clay 1975 B21 losm; weak coarse prismatic to moderate fine granular, hard dry, friable moist, noncalcareous, many worm casts and insect holes, a few coarse sand grains and small gravel; clear, smooth boundary. 16-21 inches. Grayish brown (10YR 5/2.5 dry) to very dark grayish brown (10YR 3.5/2 moist) silty clay loam. Coarse moderate subangular blocky to fine and very fine strong granular, hard dry, 1976 R22 friable moist, numerous coarse sand grains and a few small gravel, some worm casts and insect openings; gradual, smooth boundary. 21-27 inches. Grayish brown (10YR 5/2.5 dry) to dark grayish brown (10YR 4/2 moist) silty clay loss; coarse weak subangular blocky to fine and very fine weak granular, soft dry, very friable **B**3 1977 moist, noncalcareous, faintly darker coatings on some aggregates, few coarse sand grains and an occasional small granitic gravel; abrupt, wavy boundary. 1978 Cca 27-37 inches. White (10YR 8/2 dry) to light grayish brown (10YR 6-5/2 moist) silt loam. Moderate thick platy to moderate medium and fine granular in upper part, weak coarse subangular blocky to weak fine granular, soft dry, very friable moist, many fine white lime spots and coatings on aggregates, some fine brown organic stains and decaying roots in root openings, violent effervescence; permeability is slow. This horizon is characteristic of the Tripp soils on this terrace The depth to and thickness of this horizon is variable. It is a genetic horizon and the variations of thickness and depth from the surface are probably significant in the use and management of the soils. Clear, wavy boundary. 37-52 inches. Very pale brown (10YR 7/3 dry) to brown (10YR 5/3 moist) very fine sandy loam or loam. Massive to single grain, soft dry, very friable moist, few fine white lime specks, violent effer-1979 Cl vescence; sbrupt, smooth boundary. D 52-60+ inches. Not sampled for laboratory. Fine and medium sand and fine to coarse gravel, limy coating on sand and gravels.

SOIL SURVEY LABORATORY Mandan, N. Dak.

SOIL TYPE Tripp LOCATION Scotts Bluff County, Nebraska

SOIL NOS. S53Nebr-79-7-(1-7) LAB. NOS. 1980-1986

		1Bla	•	PARTI	CLE SIZ	E DISTRIB	WTION (in	пип.) (ре	r cent)	3A1		
DEPTH	HORIZON	VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0,5-0,25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.0 <b>0</b> 2	CLAY < 0.002	0. 2-0.02	<b>202-3002</b>	> 2	TEXTURAL CLASS
0-7 7-13 13-20 20-30 30-35 35-45 45-63	Alp Al2 B21 B22 B3 Cca C1	0.4 0.7 0.2 0.5 0.6	1.6 1.5 2.0 2.1 2.0 0.4 1.9	2.0 1.9 2.6 3.2 2.8 1.1 3.0	8.0 7.8 7.9 9.5 7.5 8.4 8.8	39.8 41.1 40.8 40.7	27.2 28.8 27.9 28.7 32.2 48.2 38.8	19.8 19.5 16.9 14.8 13.2 6.8 10.2	62.6 62.9 65.3 65.5 66.2 70.2 67.2	11.5 11.5 10.4 10.9 12.7 20.9 14.6	Tr. Tr. 1 1	vfsl vfsl vfsl vfsl vfsl vfsl l
SC16 SATU- RATED PASTE	pH 8Cla 1:5			NITRO-	TTER C/N	8A2 ESTA SALT (BUREAU CUP)	ELECTRI- CAL CONDUC- TIVITY EC×103 MILLIMHOS RER CM ÖAIA	6Ela CoCO <sub>3</sub>	6Fla GYPSUM me./100g. SOIL		URE TE	NSIONS 1B2 IS ATMOS.
7.5 7.4 	7.9 7.7 7.5	8.0 7.5 7.2	0.84 0.71 0.56			<u>a</u>	0.7 0.7 0.8	- -				10.0 9.9 8.9

Soil type: Tripp loam 853Nebr-79-7-(1-8) Soil No.: Mandan Lab. No. Horizon

Date sampled: October 2, 1953
Location: Twelve hundred feet south and 100 feet east of NW corner Sec. 19, T22N R53W, Scotts Bluff County, Nebraska Topographic position: High terrace, profile developed in losss over gravels of middle Pleistocene age. Relief: Elight, sample site on smooth slope of less than 1 percent, flat.

Described by: John Elder.

Ground water: Many feet below surface.

Root distribution: Normal above 35 inches. 35 to 45 inch horizon has a limiting effect. Roots penetrate this

horizon but growth is restricted.

Iand use: Irrigated from ditch-beans 1953. Crops on adjacent areas indicate high yields of adapted crops.

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abrupt, smooth boundary.

7-13 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) loam. Coarse weak subangular blocky to fine moderate blocky and granular, hard dry, friable moist, a 1981 A12 few coarse sand grains, noncalcareous, numerous worm casts and insect openings. Clear, smooth boundary.

13-20 inches. Grayish brown (10YR 5/2 dry) to very dark grayish brown (10YR 3/2 moist) silty clay losm. Weak coarse prismatic to moderate fine granular, hard dry, friable moist, crushes to 1982 B21 slightly lighter color, noncalcareous, many large insects and root openings. Gradual, smooth

20-30 inches. Light brownish gray (10YR 6/2 dry) to dark grayish brown (10YR 4/2 moist) silty clay losm. Weak coarse prismatic to moderate fine subangular blocky and moderate fine granular, 1983 **B22** hard dry, friable moist, noncalcareous, few coarse sand grains and fine gravel. Gradual, wavy boundary.

1984 **B**3 30-35 inches. Light gray (LOYR 7/2 dry) to grayish brown (10YR 5/2 moist) silt loam. Weak

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	SOIL SURVEY LABORATORY Mandan, N. Dak.  SCOTT TYPE Illusses LOCATION Scotts Bluff County. Nebraska
	COU TVDE Ulysses LOCATION Scotts Bluff County. Nebrasks
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r	Bu-
<u> </u>	
•	silt loam
	SOIL NOS. S53Nebr-79-1-(1-8) LAB. NOS. 1939-1946
	181a   PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1   2A2   TEXTURAL CLASS   MEDIUM FINE SAND SILT CLAY   > 2   CLASS
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Date: September 30, 1953.

Location: 0.3 mile north of SE corner Sec. 36, T22M R58M, Scotts Bluff County, Mebraska. Topographic position: Locas covered upland (Peorian and later).

Relief: Slight, smooth 2 percent slope, northeast facing.

Drainage: Well drained.

Ground water: Many feet below surface. Root distribution: Normal throughout. No limiting horisons.

Land use; Dryland wheat 1953. Stubble indicates high yield for area. Soil type: Ulysses silt loam

853Mebr-79-1-(1-8) Described by: John Elder. Soil No.:

Lab. No. Horizon

Alp 0-5 inches. Grayish brown (10YR 5.5/2 dry) to dark grayish brown 10YR 4/2 moist) silt loam. 1939 Weak coarse subangular blocky to weak fine granular, tendency toward very thick platy; hard dry, friable moist, abundant roots, noncalcarsous, abrupt, smooth boundary.

B21 5-10 inches. Grayish brown (10TR 5/2 dry) to dark grayish brown (10TR 4/2 moist) silty clay 1940 loam. Moderate very coarse primmatic breaking to moderate fine granular; hard dry, friable moist, abundant roots which penetrate aggregates but tend to follow aggregate planes, worm holes and casts numerous, noncalcareous, clear, irregular boundary.

10-15 inches. Pale brown (10YR 6/3 dry) to brown (10YR 5/3 moist) silty clay loam. Weak medium prisuntic breaking to weak fine subangular blocky and weak very fine granular, hard 1941 dry, friable moist, abundant roots, noncalcareous, clear, wavy boundary.

15-21 inches. White (10YR 8/2.5 dry) to pale brown (10YR 6/2.5 moist) silt loam. Moderate, 1942 coarse subangular, blocky to weak fine gramular, slightly hard dry, friable moist, violent effervescence, white lime coatings in pores and root openings; fine roots abundant, diffuse, wavy boundary.

21-27 inches. Very pale brown (10YR 8/3 dry) to pale brown (10YR 6/3 moist) silt loam. Weak 1943 coarse subengular blocky to weak fine and medium subengular blocky, soft dry, very friable moist, few faint lime coatings along root channels and pore openings, violent efferwescence, diffuse wavy boundary.

1944 27-34 inches. Very pale brown (10YR 8/3 dry) to pale brown (10YR 6/3 moist) silt loam. Very weak coarse subangular blocky to very weak fine subangular blocky and very weak very fine granular, soft dry, very friable moist, violent effervescence, few fine roots, numerous very fine pores, diffuse, wavy boundary.

34-43 inches. Very pale brown (10TR 8/3 dry) to pale brown (10TR 6/3 moist) silt loam. Massive to single grain, soft dry, very friable moist, violent effervescence, few fine white specks of carbonates in pore openings, few fine roots, numerous very fine pore openings, 1945 diffuse, wavy boundary.

1946 C4 43-60+ inches. Very pale brown (10YR 8/3 dry) to 10YR 6/3 moist silt loam or very fine sandy loam, massive to single grain or very weak fine crumb, soft dry, very friable moist, violent effervescence, few fine roots, numerous very fine pores. Continues downward to an undetermined depth where the losss rests on unweathered Brule formation.

SOIL SURVEY LABORATORY Mandan, N. Daks 9/21/55

SOIL TYPE Valentine LCCATION Arthur County, Nebraska fine sand

SOIL NOS. S54Nebr-3-2-(1-4) LAB. NOS. 2435-2439

LANDES - STANDARD OFF FEMALE	<del> </del>	1315	***************************************				SUTION (in			3 <b>AI</b>	1.000 epsylle (4.1949a):	; ; ; <del>}</del>
DEPTH INCHES	HORIZON	VERY COARSE SAND	COARSE SAND			VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTUR!
		2-1	1.0,5	0.5-0.25	0 25-0.10	0.10-0.05	Q.05-Q.002	< 0 002	0.2-0.02	802-8002	,	ļ
0-4	Al	0.16	2.6	12.1	58.8	18.7	3.6	4.1	58.3	1,8	_	fs
4-8	AC	-	1.8	10.0	60.6	22.5	1.7	3.4	65.7	0.9	_	fs
8-14	ci i		2.2	11.5	60.8	6	1.3	3.0	63.0	0.6	-	fs
14-60	C2	_	2.1	11.3	61.9	21.3	0.2	3.2	63.3	0,2	- '	fs
	pН			NIC MA			ELECTRI-	4	<u> </u>		TURE T	
SATU-	Bcla			6Kia		ESTS SALT (BUREAU	ELECTRI- CAL CONDUC- TIVITY	CeCO <sub>3</sub>	GYPSUM		4 <u>81a</u>	41
PASTE	1:5	1:10	organic Carbon %	NITRO~ GEN	Ç/N	(BUREAU CUP)	EC - 103 MILLIMHOS PER CM	equiv- alent	me./100g. SOIL	1/10 ATMOS. %	1/3 ATMOS,	ATMO
6 77	7 2	7 2	0.76	.058	13.1			<del></del>	ļ	7.6	4.6	3.1
6.7 6.7	7.2 7.4	7.3 7.4	0.44	.037	11.9				Ì	5.8	3.4	2.7
6.9	6.9	7.0	0.28	.025	11.2		}		İ	4.8	2.9	2.0
6.7	6.9	6.9	0.13							4.3	2.6	1.6
5Ala. CATION XCHANGE APACITY		EXTRAC 60216		CATIONS 6P2a	581a 692a	BASE SAY.	chaps, rhappy to those		<b>5A3a</b> Sum	813		MOISŢUI
APACITY	<b>6</b>	Mo	н	No	ĸ		No	ĸ	Cations	Са/Ма		SATU- RATIO
NH, Ac		millinguiv	elents per	100g, seil	<b>.</b>	501		1	me/100g	Į	ļ	*
			•••••	• • • • • • • • • • • • • • • • • • • •		[ · · · · · · · · · · · · · · · · · · ·		<b>†</b>			 	·····
5.2	3.3	0.7		0.1	0.5	88			4.6	-	1	i
4.0 3.4	2.6 2.4	0.8		0.1 0.1	0.3 0.2	95 88			<b>3.</b> 8	3.2 3.0	Į	Į Į
3.0	2.0			0.1	0.2	93			2.8	b.0		•
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Soil type: Valentine fine sand Soil No.: S54Nebr-3-2-(1-4)

Location: 12.1 miles north of Arthur, Arthur County, Nebraska on Arthur-

Hyannis road; 900 feet north and 110 feet east of southwest corner

Sec. 4, T20H, R38W.

Topography: On northwest facing slope of about 5 percent gradient, bordering

a "sandhill" valley. A large grove of cottonwood trees about .5

mile west-northwest of the sample site.

Described by: B. H. Williams.

#### Mandan

Lab.

No. Horizon Depth

2436 Al O-4 Dark grayish brown(10YR 4.5/2, dry) to very dark grayish brown (10YR 3/2, moist) fine sand; single grained; slightly hard, dry but crushes easily between fingers; very friable, moist; clear smooth lower boundary.

2437 AC 4-8" Grayish brown (10YR 5/2, dry) to dark grayish brown (10YR 4/2, moist) fine sand; single grained; loose, dry and moist; except a few slightly hard lumps when spaded out, dry; clear smooth lower boundary.

2438 C<sub>1</sub> 8-14" Brown (10YR 5/2.5, dry) to brown (10YR 4.5/3, moist) fine sand; single grained; slightly hard or slight resistance to digging when dry; very friable, moist; gradual smooth lower boundary.

2439 C<sub>2</sub> 14-60" Pale brown (10YR 6/3, dry) brown (10YR 4.5/3, moist) fine sand; same as above except seemingly a fraction lighter-colored.

OIL TYPE Valentine LOCATION Cherry County, Hebraska

SOIL NOS. S54Nebr-16-1-(1-5) LAB. NOS. 244, 3-2444

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DEPTH INCHES	MORIZON	VERY	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURAL CLASS
		2-1	1-0.5	0.5-0.25	0 75-0.10	0 10-0 05	0.05-0.002	< 0.002	0. 2-6. C2	003-0003	<u> </u>	
0-4 4-10	Al AC	0.2 <b>b</b> 0.1	4.2 4.6	12.7 13.3 11.2	50.2 55.1 56.2	24.7 21.6 24.0	4.1 2.2 1.8	3.9 3.1 3.2	61.0 60.7 64.3	1.8 0.8 1.7	- -	fs fs fs
10-18 18-32 32-54	C1 C2 C3	0.1	3.6 4.4 3.8	18.6	58.9 59.1	14.7	1.0	2.4	51.0	0.3	- -	fs fs
			1									
	PH.			NIC MY	TTER	4 M + 4 1 10 PR 44 4 3 1 12 M + 44 1	ELECTRI-		157-1-1-07111111111111111111111111111111		URE TE	
8CID SATU- RATED PASTE	801a 1:5	8CLa 1:10	GALA ORGANIC CARBON	NITRO-	C/N	ESTS SALT (BUREAU CUP)	CONDUC- TIVITY EC 103 MILLIMHOS	CoCO3 equiv- olent	GYPSUM me./100g. SOIL	4 <u>81a</u> 1/10 ATMOS.	4 <u>81a</u> 1/3 ATMOS.	4 <u>182</u> 15 ATMOS.
, Fee 2 2 3 3	i		•	•			PER CM	*		*	*	*
6.0 6.2 6.5 6.7 6.8	6.4 6.6 6.7 6.9 7.0	6.5 6.6 6.6 6.7 6.9	0.98 0.46 0.22 0.09 0.07		10.6 11.5					9.8 6.2 5.6 3.6 4.8	5.8 3.7 3.1 2.1 2.7	4.0 2.5 2.0 1.4 1.6
5Ala CATION EXCHANGE CAPACITY NH, Ac	6 <b>12%</b> Ca	EXTRAC 602b	TABLE (	ATIONS 6P2a Né	581a 602a K	BASE SAT.	Neering	<b>8</b> C		<b>8103</b> Со/Мв		MOISTURE ATU- SATU- RATION
ــــــــــــــــــــــــــــــــــــــ		mi i lingui v	slants per	160g. soft		5Cl.		;	Cations seving			5
5.9 3.7 3.3 2.4 2.8	3.6 2.1 2.0 1.5 1.8	0.6 0.4 0.6 0.2 0.8		0.1 0.1 0.1 0.1 0.1	0.3 0.3 0.2 0.1 0.2	78 78 88 79 100			1.9	6.0 5.2 3.3 7.5 2.2		
	ticle			_		lle Tab	oratory.					
								,				,

Soil type: Valentine fine sand Soil No.: S54Nebr-16-1-(1-5)

Location: 250 feet south and 270 feet east of point where road crosses

section line; north side Sec. 25, T26N, R28W; on U. S. Highway 83, 16.4 miles north of junction with Nebraska Highway 2, east of

Thedford, Cherry County, Nebraska.

Topography: On short northwest facing slope of about 10 percent gradient.

Farmstead and grove of trees .5 mile to the northwest in a "dry"

valley.

Described by: B. H. Williams.

#### Mandan

Lab.

No. Horizon Depth

2440 Al O-4" Dark grayish brown (10YR 4/2, dry) to very dark brown (10YR 2.5/2, moist) fine sand. Single grained; soft, dry with sufficient coherence to break into soft lumps; loose, moist; clear smooth boundary.

2441 AC 4-10" Brown (10YR 5/2.5, dry) to dark grayish brown (10YR 1/2, moist) fine sand. Single grained, soft, dry with sufficient coherence to form soft lumps; loose, moist; clear smooth boundary.

2442 C1 10-18" Pale brown (10YR 6/3, dry) to dark brown (10YR 4/3, moist) fine sand, single grained; soft, dry; loose, moist; gradual smooth boundary.

2443 C<sub>2</sub> 18-32" Light gray (10YR 7/2, dry) to grayish brown (10YR 5.5/2, moist) fine sand. Similar to above with slightly lighter and grayer colors.

2444 C3 32-54\* Light brownish gray (10YR 6/2.5, dry) to grayish brown (10YR 5/2.5, moist) fine sand; single grained; soft, dry, loose and very friable, moist. Seems to differ from the horizon above mainly or only in that there are two dark yellowish brown (moist) irregularly wavy thin seams or lenses (10YR 6/3, dry; h.5/3, moist) of slightly clayey sand, probably loamy fine sand in this horizon. The upper lense was about 1/h-inch thick, the lower one about 1/2-to 3/4-inches thick. This material has a slightly firm moist consistence.

SOIL SURVEY LABORATORY Mandan, N. Dak. 4 9/20/55

SOIL TYPE Valentine LOCATION Cherry County, Nebraska fine sand

SOIL NOS. 554Nebr-16-2-(1-5) LAB. NOS. 2445-2449

		TETP.		PART	CLE SIZ	E DISTRIE	UTION (in	mm.) (p	er cent) 3	A1		
DEPTH INCHES	HORIZON	VERY COARSE SAND 2.1	COARSE SAND	•	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	\$ILT 0.05-0.002	CLAY	0.2-0.02		2A2 > 2	TEXTL
		<del></del>	i	i		!	i		17	ì		<del>                                     </del>
0-4	Al	-	1.9	10.5	59.9	18.6	4.3	4.8	1	1.5	t	fs
4-8	AC	0.1	2.5	10.4	57.3	21.5	3.1	5.1	63.6	1.2	<u> </u>	fs
8-16	C1	0.1	2.8	8.2	63.3	19.3	1.0		66.3	0.4	•	fs
16-39	C2	-	1.5	11.7	64.1	16.8	0.8	5.1	61.4	0.3	[ <del>-</del>	fs
39-60	C3	-	1.3	18.6	70.4	6.5	0.6	2.6	41.6	0.2	-	fs
·	pН			ANIC MA		şegidi ekaden osaşezgeli	ELEÇTRI-	************	······································	MOIST	URE TE	NSIO
SATED PASTE	801a 1:5	801.a 1:10	6Ala Organic Carbon		C/N	ESTS SALT (BUREAU GUP)	CAL CONDUC- TIVITY EC «103 MILLIMHOS PER CM	equiv-	GYPSUM me,/100g, SOIL	4Bla. 1/10 ATMOS.	4Bla 1/3 ATMOS.	ATA
,		·	*	- %				*	<u>!                                      </u>	*	*	_ '
6.2	6.6	6.6	0.90	.078	11.5				1	9.8	5.6	3.3
6.6			0.52	.045	11.6		<u> </u>		•	7.5	4.9	3.0
6.6	6.9	6.7 6.9	0.24	.045	177.0		1	•	1	6.5	4.3	2.6
6.8	7.1		0.24	.021						6.8	4.4	2.4
6.7	7.1 7.1	6.9 6.7	0.06					ļ	i	3.4	2.1	1.3
5 <u>Ala</u> Cation	6 <b>x</b> ≥b	EXTRAC 602b	TABLE	CATIONS 572a	581 <u>a</u> 602a	BASE SAT.	# 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		5A3e Sum	813		MOIS
XCHANGE APACITY	Co	Mg	н	No	ĸ		No	ĸ	Cat-	74 /26m		SAT
NH, Ac	· .	) millioquiv	i eleme per	100g. sail	<u> </u>	501.			ions ne/100g	Ca/Mg		
6.1	4.1	0.8		0.1	0.3	87		<u> </u>	5.3	5.1		•
5.4	3.7	0.6		0.1	0.3	87		l	4.7	6.2	İ	ļ
4.6	3.2	0.9		0.1	0.3	98		Į.	4.5	3.5	Ī	
4.3	2.8	0.6		0.1	0.3	88		į	3.8	4.7	į	1
2.3	1.5			0.1	0.2	100		1	2.3	3.0	ļ	1
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		77.7.4.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0	***************************************	e service de la company de la	Andreas IN Construction of the Construction of							
		des lagt upp of wedder in females last the last last last last last last last last	e par deleves registration of the contract of	uje gadina sika a ujin sa pup parkibara, kraji	ges safe - Amilia - Lak Ora a van ges							

Soil type: Valentine fine sand Soil No.: S54Nebr-16-2-(1-5)

Location: Near northeast corner of southeast quarter of northeast quarter, Sec.

23, T27N, R28W; 230 feet west and 50 feet south of fence corner that is located 480 feet west of Highway 83 adjacent to ranch road, (Richardson Ranch) leading west .9 mile north of Brownlee road junction with Highway 83. 23.1 miles north on U. S. Highway 83, from its junction with Nebraska Highway 2, east of Thedford, Cherry

County, Nebraska.

Topography: West facing slope of undulating and gently rolling area lying

south and east of broad irregularly shaped valley; a large farm-

stead spread about .5 mile north of location.

Described by: B. H. Williams.

Mandan Lab.

No. Horizon Deuth

dry; very friable, moist; clear smooth lower boundary.

2446 AC 4-8" Brown (10YR 5/3, dry) to dark grayish brown(10YR 1/2, moist fine sand; single grained; slightly hard, slight resistance to digging, when dry; loose friable, moist; clear smooth lower boundary.

2447 C1 8-16" Brown (10YR 5.5/3, dry) to brown (10YR 5/3, moist) fine

SOIL SURVEY LABORATORY Mandan, N. Dak.

SOIL TYPE Volin LOCATION Saunders County, Nebraska

very fine sandy loam

SOIL NOS. 553Nebr-78-2-(1-8) LAB. NOS. 1482-1489

ï	h	***************************************	1Bla	·~~~~~	PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent)	3 <b>A1</b>		
	DEPTH		VERY				VERY					2A2	TEXTURAL
	INCHES	HORIZON	COARSE SAND	COARSE SAND	MEDIUM SAND	FINE	FINE SAND	SILT	CLAY			<b>&gt;</b> 2	TEXTURAL CLASS
Ĺ			2-1	1-0,5	0.5-0.25	0.25-0.10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	002-0002		
Ī	0-6	Alp	-	_	0.2	1.3	19.3	65.3	13.9	```.2	14.4	•	sil
I	6-11	Al2	-	-	0.2	1.2	23.8	59.6	15.2	69.7	14.6	-	sil
ı	11-15	AC	-	-	-	0.6	22.8	63.6	13.0	72.3	14.6	-	sil
Ì	15-24	CJ	-	-	-	0.5	18.7	68.2	12.6	72.1	15.2	-	sil
ļ	24-32	C2	<b>-</b> _	-	0.2	0.8	20.0	70.4	8.5	81.4	9.4	-	sil
Ì	32-39	Cca.	0.4	0.3	0.1	-	6.8	74.5	17.7	57.9	23.4		sil
į	39-48	C3	<b>-</b>	-	-	0.9	51.8	42.0	5.3	90.4	4.1	-	vfsl
ļ	48-66	C4	0.5	0.3		-	2.4	76.8	20.0	39.6	39.6	-	sil
ŧ													l 1
ļ.,	*************	; ;	449241 14421244724				8A2		p				
Ļ	PH ORGANIC MATTER							ELECTRI-	6Ela	6Fla	MOIST	URE TE	NSIONS
'n	_9 @12 L	<u> </u>	ביי רואס	L.,4.49 - 1	!	: :		1		1.	:		· · · ·

Soil type: Volin very fine sandy loam

Soil No.: S53Nebr-78-2-(1-8)

Location: One-fourth mile south and 100 feet west of NE corner Sec. 26, T13N, R9E, Saunders County, Nebraska Topographic position: Platte River bottom land above flood level of the river but may be occasionally flooded by

local drains.

Relief: Slight, on slightly elevated position with respect to surrounding area.

Drainage: Moderately well drained to well drained.

Ground water: Below 6 feet, probably 8 to 10 feet below the surface but is known to fluctuate to about 5 feet below the surface in some years.

Land use: Cultivated. Capable of producing high yields of corn and alfalfa.

Described by: B. H. Williams and Donald C. Yost.

#### Mandan

Iab. No. Horizon 1482 Alp

0-6 inches. Dark gray (10YR 4/1 dry) to very dark gray (10YR 3/1 moist) very fine sandy loam; weak thick platy breaking to moderate fine granular; soft, dry; friable, moist; noncalcareous; abrupt smooth lower boundary.

1483 Al2 6-11 inches. Dark gray (10YR 4/1 dry) to very dark gray (10YR 3/1 moist) silt loam; weak coarse subangular blocky breaking to strong fine granular; slightly hard, dry; friable, moist; non-calcareous; many fine and medium pores and openings; clear smooth lower boundary.

1484 AC 11-15 inches. Grayish brown and light brownish gray (10YR 5/2 and 6/2 dry) to dark gray and grayish brown (10YR 4/2 and 5/2 moist) stilt loam soil from horizons above and below mixed by worms in about equal amounts of the lighter and darker colors; moderate coarse subangular blocky breaking to strong medium and fine granular; slightly hard, dry; friable, moist; numerous fine pores and openings; noncalcareous. Smooth clear lower boundary.

1485 Cl 15-24 inches. Light brownish gray (2.5% 6/2 dry) to dark grayish brown (2.5% 4/2 moist) silt loam; massive, but separates into weak fine granular or crumb-like particles; soft, dry; very friable, moist; many fine pores and openings; noncalcareous; clear smooth lower boundary.

1486 C2 24-32 inches. Light gray or nearly white (2.5Y 7.5/2 dry) to grayish brown (2.5Y 5/2 moist) very fine sandy loam; massive, soft, dry; very friable, moist; many medium and fine pores and openings; noncalcareous, pH 7.5 (Soiltax); clear amooth lower boundary.

1487 Cca 32-39 inches. Light gray or nearly white (2.5Y 7.5/2 dry) to grayish brown (2.5Y 5/2 moist) silt loam, dark grayish brown (2.5Y 4/2 moist) containing some worm casts and a few coarse brown mottles; massive; soft, dry; vary friable, moist; many medium and fine pores and openings; violent effervescence, pH 7.5, numerous fine white streaks and spots of lime; clear smooth lower boundary.

1488 C3 39-48 inches. Light gray or nearly white (2.5Y 7.5/2 dry) to light brownish gray (2.5Y 6/2 moist) loamy very fine sand, common faint fine and coarse brown mottles and very thin dark-colored lenses; massive, soft, dry; very friable, moist; weak effervescence, pH 7.5; gradual smooth lower boundary.

1489 C4 48-66 inches. Light gray (10YR 7/1 dry) to gray (10YR 5/1 moist) silt loam and sandy loam, stratified with very thin lenses of nearly white very fine sandy loam and nearly black silty clay loam; massive; soft, dry; very friable, moist; weak effervescence, pH 7.5; clear smooth lower boundary.

Alb 66-70+ inches. This horizon not sampled for laboratory analysis. Very dark gray or nearly black silty clay loam.

SOIL SURVEY LABORATORY Lincoln, Nebr. April 1959

SOIL TYPE Wabash LOCATION Pawnee County, Nebraska silty clay loam

SOIL NOS. S58Nebr-67-4-(1-6) LAB. NOS. 9156-9161

	****************	1 <b>R</b> la		PARTI	CLE SIZ	E DISTRIB	UTION (in	mrn.) (pe	r cent)	XII'''''		
DEPTH INCHES	HORIZON	VERY COARSE SAND 2-1	COARSE SAND 1-0,5	SAND	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	S!LY 0.05-0.002	CLAY < 0.062	C. 2-0.02	<b>Q</b> 02- <b>Q</b> 092	> 2 > 2	TEXTURAL CLASS
0-5 5-11 11-22 22-35 35-48 48-63	Al2 Al3 Cl C2		0.4a 0.4a 0.2a 0.2a	0.4a	0.9b 0.8b 0.5b 0.6b 0.4b 0.6b	1.3b 1.0b 0.9b 0.8b 0.5b 0.7b	58.3	35.0 39.2 43.7 48.7		35.8 37.2 36.7 36.1 36.5 37.3	  	sicl sicl sic sic sic sic
8 <b>Cl</b> a	pH 1:5		ORGA 6 <b>Ala</b> ORGANIC CARBON	NITRO-	C/N	6Cla Free Iron as	ELECTRI- CAL CONDUC- TIVITY EC×103 MILLIMHOS PER CM	CaCD3	CYPSUM me./100g. SOIL		URE TE	NSIONS 4B2 15 ATMOS.

Soil Type: Wabash silty clay loam

Classification: Alluvial

Location: 150 feet south and 0.2 mile east of center of Sec. 11, TIN, R11E, located about 3 miles south of Pawnee

City, Pawnee County, Nebraska.

Date Sampled: September 12, 1958. Collectors: R. Jordan, R. Greenawalt.

Use: Cultivated (corn 1958).

Climate: Average annual precipitation 31 inches: average annual temperature 53° F.

Parent Material: Alluvium. Physiography: Bottom land. Slope: Less than 1 percent. Drainage: Slow. Ground Water: Below 5 feet. Soil No.: S58Nebr-67-4-(1-6) Lincoln Lab. No. Horizon 0-5 inches. Very dark gray (10YR 3/1 dry) to black (10YR 2/1 moist) silty clay loam; moderate and 9156 Alp very fine granular structure; slightly hard dry, friable moist; noncalcareous; abrupt smooth lower boundary. 5-11 inches. Very dark gray (10YR 3/1 dry) to black (2.5Y 2/0 moist) heavy silty clay loam; moderate medium and fine granular structure; slightly hard dry, friable moist; noncalcareous; gradual 9157 A12 smooth lower boundary. 11-22 inches. Very dark gray (10YR 3/1 dry) to black (2.5Y 2/0 moist) silty clay; moderate medium 9158 A13 and fine blocky structure; hard dry, firm moist; noncalcareous; gradual smooth lower boundary. 22-35 inches. Black (10YR 2/1 dry) to black (2.5Y 2/0 moist) silty clay; weak medium and fine 9159 blocky structure with clay films on the aggregate faces; very hard dry, very firm moist; noncalcareous; gradual smooth lower boundary. 9160 CI35-48 inches. Dark gray (10YR 4/1 dry) to very dark gray (10YR 3/1 moist) silty clay; weak coarse blocky structure with clay films and the sides of the blocks are slicked at a 45° angle; very hard dry, very firm moist; noncalcareous; gradual smooth lower boundary. 48-63 inches. Dark gray (10YR 4/1 dry) to very dark grayish brown (10YR 3/2 moist) silty clay; 9161 C2 weak coarse blocky structure with clay films and the sides of the blocks are slicked at a 45 angle; very hard dry, very firm moist; noncalcareous but with a few medium hard lime concretions.

Note: Horizons Alp, Al3 and C2 were sampled for the Bureau of Public Roads.

- <del>-</del>	SOIL SURVEY LABORATORY Lincoln, Nebr. April 1959  SOIL TYPE Wabash LOCATION Pawnee County, Nebraska silty clay loam														
SOIL	NOS	5.	S581	Webr-67	7 <b>-8-(</b> 1-	7)1	LAB. f	vos.	918	35-9191					
**************************************			F1 P141 1 10 F1 24 44441	117 CIA CI		marmmanna S NICTOID	UTION (in		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		<b>6</b> 41)16141F734744	;;::::::::::::::::::::::::::::::::::::			
		1Bla VERY			CLE 312	VERY	0.104 111				2 <b>A</b> 2	TEXTURAL			
DEPTH	HORIZON	COARSE	COARSE SAND	MEDIUM SAND	FINE SAND	FINE SAND	SIL!	CLAY			> 2	CLASS			
		2.1	1-0.5	0.5-0.25	0, 25-0, 10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	002-0002		ļ 			
0-7	Alp	0.1	0.3		1.3a	1.5a			28.6			sicl			
7-13	Al2	<0.1	<del>.</del>	:	1.1b			34.3		38.2		sicl			
13-22	A1.3	<0.1		0.3b	0.66	, ,		48.2 49.6		35.2 34.7		sic			
22-36 36-44	A14	0.1b			0.3b 0.2b			47.0				sic			
	A31. A32				0.2b			48.8		33.3		sic			
52-60	C		0.4d		0.6d	0.4e	49.0	49.2		34.3		sic			
Encyptopostjanninini	<u>.</u>	<u> </u>		<u> </u>	<u>:</u> :	***********	; , +, 34***************				**********	***************************************			

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Soil Type: Wabash silty clay loam

Classification: Alluvial

Location: 500 feet east and 160 feet south of center of Sec. 21, T2N, R11E, located about 2 miles west and 1 mile

north of Pawnee City, Pawnee County, Nebraska.

Date Sampled: September 16, 1958.

Collectors: J. Allen, J. Elder, R. Greenawalt.

Use: Cultivated (red clover).

Climate: Average annual precipitation 31 inches; average annual temperature 53° F.

Parent Material: Alluvium. Physiography: Bottom land.

Drainage: Slow.

Slope: Less than 1 percent. Ground Water: Deeper than 5 feet. Soil No.: S58Nebr-67-8-(1-7)

Lincoln

Lab. No. Horizon

9185 Alp 0-7 inches. Very dark brown (10YR 2/2 dry) to very dark brown (10YR 2/2 moist) silty clay loam; moderate fine and very fine granular structure; slightly hard dry, friable moist; noncalcareous; abrupt smooth lower boundary.

9186 Al2 7-13 inches. Very dark gray (2.5Y 3/0 dry) to black (2.5Y 2/0 moist) silty clay loam; moderate fine granular structure; slightly hard dry, friable moist; noncalcareous; gradual smooth lower boundary.

9187 Al3 13-22 inches. Very dark gray (2.5Y 3/0 dry) to black (10YR 2/1 moist) silty clay; moderate medium and fine blocky structure; hard dry, firm moist; noncalcareous; gradual smooth lower boundary.

9188 Al4 22-36 inches. Very dark gray (JOYR 3/1 dry) to black (JOYR 2/1 moist) silty clay; moderate medium and fine blocky structure; some of the blocks are slicked; hard dry, firm moist; noncalcareous; gradual smooth lower boundary.

9189 A31 36-44 inches. Dark gray (10YR 4/1 dry) to very dark gray (10YR 3/1 moist) silty clay; moderate coarse blocky structure; the sides of the blocks are slicked and at a 45° angle; hard dry, firm moist; noncalcareous; gradual smooth lower boundary.

9190 A32 44-52 inches. Dark gray (5Y 4/1 dry) to very dark grayish brown (2.5Y 3/2 moist) silty clay; moderate coarse blocky structure; the sides of the blocks are slicked at a 45° angle; hard dry, firm moist; noncalcareous; gradual smooth lower boundary.

9191 C 52-60 inches. Dark gray (5Y 4/1 dry) to very dark grayish brown (2.5Y 3/2 moist) silty clay; moderate coarse blocky structure; the sides of the blocks are slicked at a 45° angle; hard dry, firm moist; calcareous.

Note: Horizons Alp, Al3 and C were sampled for the Bureau of Public Roads.

SOIL SURVEY LABORATORY Mandan, N. Dak.

SOIL TYPE Wann LOCATION Hall County, Nebraska silt loam

SOIL NOS. <u>\$53Nebr-40-3-(1-5)</u> LAB. NOS. <u>1566-1570</u>

************		lBla	. 12 <b>00014</b>  \$\$\$\$\$			**************************************	UTION (in		84	4	<sup>46</sup> : 1001 11 10 11 10 10 10 10 10 10 10 10 1	
DEPTH INCHES		VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY	e control	_	2A2 > 2	TEXTURAL CLASS
		2-1	1-0.5	Į .		0.10-0.05	0.05-0.002		0.2-0.02	<b>407-4002</b>		
0-6 6-15 15-20 20-27 27-32	Al3 AC	9.1 8.5 10.3	11.4 17.7 20.6 20.6 26.2	10.2 15.7 18.2 19.3 17.8	11.1 15.8 17.9 20.6 17.0	13.7 8.3 8.0 7.5 4.6	35.5 20.8 16.2 13.2 5.3	14.1 12.6 10.6 8.5 4.5	45.7 30.6 27.4 26.1 15.3	8.5 5.3 4.7 3.9	1 4 3 2 8	l cosl cosl cosl
SCID SATU- RATED	e <b>H</b> 8Cla		ORGA 6Ala	NIC MĄ		8A2 EST% SALT	ELECTRI- CAL CONDUC- TIVITY	CoCO <sub>3</sub>	6Fla Gypsum		URE TE	4B2
RATED PASTE	1:5	1:10	ORGANIC CARBON %	NITRO- GEN	C/N	(BUREAU CUP)	EC × 103 MILLIMHOS REP CM	equiv- alent	me./100g. SOIL	1/10 ATMOS.	1/3 ATMOS.	15 ATMOS.
8.1 8.4 8.5 8.0 8.0	8.4 8.8 8.9 8.2 7.4	8.9	1.25 0.76 0.37 0.14 0.07			8.	1.1 1.0 0.9 0.8 0.7	2 4 2 -	-			7.6 7.1 6.3 4.7 2.2
5Ala	5Bla	C	ATTONS		<u>5</u> в1ь	502	BAISATU	RATION	EXTRAC	T SOL.	***************************************	8 <b>A</b>
CATION EXCHANGE CAPACITY THU AC	EXTRAC Ca.	Me	gients cer	FXCHAN 6P2a Na 100g. sei	K	EXCH.	6Pla No	601a K	ivalents p	er (liter		MOISTURE AT SATU- RATION
13.9 9.7 8.2 7.0 3.4	a the	h 0.20		0.4 0.7 1.0 0.7 0.3	1.0 0.4 0.2 0.2 0.1	3 7 12 10 9	3.0 6.7 7.4 6.7 5.2	0.8 0.1 0.1				35.9 32.0 28.4 23.6 19.5
a. <u>Le</u>			With the state of	— III. ide—verwaldtussen at der sager i serent ser sager i serent ser sager i serent serent serent serent sere	p-d	**************************************	ANN THE PROPERTY AND THE PROPERTY OF THE PROPE	ANGEGRÄFFERTYNNY - ALGEST WASHEN WYN IN CHRANGE WASHEN ANGES ANGES ANGES ANGES ANGES ANGES ANGES ANGES AND ANGES AND ANGES AND ANGES AND ANGES AND ANGES AND ANGES AND ANGES AND ANGES AND ANGES AND ANGES AND ANGES AND ANGES AND ANGES AND ANGES AND ANGES ANGES AND ANG	Obes to consequent and in constitution of the	APPEN	1984	Mr_itteliffe-top-tie finanzanzanzun (Zinka bergeferefer- ituri - r.

Soil type: Wann silt loam
Soil No.: S53Nebr-40-3-(1-6)
Location: One hundred and fifty feet northeast of south 1/4 corner Sec. 1, TLON, RLOW, Hall County, Nebraska

Topographic position: Nearly level Platte River bottom land above overflow. Drainage: Moderately well drained.

		Corn, 1952. H. Williams and Donald C. Yost.
	Horizon	Control of the second of the s
1566	Alp	0-6 inches. Dark gray (10YR 4/1 dry) to very dark gray (10YR 3/1 moist) silt loam; moderate fine and very fine granular; soft, dry; friable, moist; strong effervescence; abrupt smooth lower boundary.
1567	VIS	6-15 inches. Very dark gray (10YR 3.5/1 dry) to nearly black (10YR 2.5/1 moist) silt loam or loam; containing a few fine gravel; strong fine and very fine granular; soft, dry; friable, moist; violent effervescence; clear smooth lower boundary.
1568	A13	15-20 inches. Gray (10TR 5/1 dry) to very dark gray (10TR 3/1 moist) loam; containing a few fine gravel, moderate fine granular; soft, dry; friable, moist; violent effervescence; clear smooth lower boundary.
1569	AC	20-27 inches. Gray (10YR 5/1.5 dry) to dark gray (10YR 4/1 moist) fine sand losm; moderate fine granular; soft, dry; very friable, moist; weak effervescence in upper part; clear smooth lower boundary.
1570	C	27-32 inches. Light brownish gray (10YR 6/2 dry) to grayish brown (10YR 5/2 moist) loamy sand; single grained, loose, noncalcareous; gradual wavy lower boundary.

32-404 inches. Not sampled for Mandan laboratory. Very pale brown sand and fine gravel; loose, noncalcareous; mater table at about 60 inches. At about 60 inches plus is a horizon with prominent brown mottlings. Little or no mottling above 60 inches to indicate restriction in drainage above D the water table.

SOIL SURVEY LABORATORY Mandan, N. Dak.

SOIL TYPE Wann LOCATION Hall County, Nebraska silt loam

SOIL NOS. S53Nebr-40-2-(1-6) LAB. NOS. 1560-1565

	***************************************	lBla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent)	"3 <b>A1</b> ""	***************************************	2924141 <del>14144441818181818</del>
DEPTH INCHES	<b>HO</b> RIZON	VERY COARSE SAND 2-1	COARSE SAND 1-9.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 (C19mm)	TEXTURAL CLASS
0-7 7-12 12-17 17-21 21-27 27-35	Alp Al2 Al3 Cl C2 D	2.6 2.6 7.2 4.3 5.7 25.5	7.1 8.6 13.0 9.0 11.2 29.6	7.2 8.4 10.2	12.4 15.3 15.4 16.6 15.4 15.7	20.7 19.3 22.8 28.8 32.4 5.3	35.1 32.7 24.7 26.2 20.5 3.5	14.9 13.1 6.7 6.2 4.7		8.3 6.8 5.0 4.4 3.4 0.4	Tr. 1 2 1 26	l fsl sl fsl ls cos
всіь	#4 1801a 1	801a	ORGA 6Ala	NIC MA	TTER	8A2 EST%	ELECTRI- CAL CONDUC-	6Ela	6Fla	MOIST	URE TE	NSIONS 4B2
SATU- RATED PASTE	1;5		ORGANIC CARBON		C/N	SALT (BUREAU CUP)	TIVITY EC×103 MILLIMHOS PER CM OALA		GYPSUM me./100g. SOIL	1/10 Atmos. %	1/3 ATMOS. %	15 ATMOS.
`8.1 8.3 8.2 7.9	8.7 8.7 8.6 7.7	9.0 8.9 8.8 7.6	1.19 0.91 0.34 0.17			a	1.2 1.1 1.0 0.9	5 5 2 1	_			8.5 7.3 4.9 4.1











Soil type: Wann silt loam

\$53Nebr-40-2-(1-6) Soil No.:

Location: O.1 mile north of east 1/4 corner Sec. 8, TION, ROW, Hall County, Nebraska.

Topographic position: Broad, slightly depressed flat of broadly undulating Flatte River bottom land above overflow.

Drainage: Poorly drained.

Use: Cultivated. Corn, 1952. Described by: B. H. Williams and Donald C. Yost.

Mandan	
Lab.No.	Horizon
<b>15</b> 60	Alp

0-7 inches. Gray (10YR 5.5/1 dry) to very dark gray (10YR 3/1 moist) silt loam; strong fine granular; slightly hard, dry; friable, moist; violent effervescence, pH 8.5 (Soiltex); few coarse sand grains; abrupt smooth lower boundary.

7-12 inches. Gray (10YR 5/1 dry) to very dark gray (10YR 3/1 moist) silt loam; strong fine granular; slightly hard, dry; friable, moist; many fine and medium pores and openings; violent effervescence; clear smooth lower boundary. 1561 Al2

12-17 inches. Gray (10YR 5.5/1 dry) to very dark gray (10YR 3/1 moist) loam; weak medium and fine granular; slightly hard, dry; friable, moist; strong effervescence, pf 8.5 (Soiltex); clear smooth 1562 A13 lower boundary.

1563 Cl 17-21 inches. Grayish brown (10YR 5/2 dry) to dark grayish brown (10YR 4/2 moist) fine sandy loam; massive or weak fine granular; soft, dry; very friable, moist; no effervescence, pH 7.2; gradual smooth lower boundary.

1564 œ 21-27 inches. Light brownish gray (10YR 6/2 dry) to grayish brown (10YR 5/2 moist) loamy fine sand or fine sandy loam; common faint fine yellowish brown mottles; massive; soft, dry; very friable, moist; noncalcareous, pH 7.0; gradual smooth lower boundary.

27-35 inches. Light brownish gray (10YR 6/2.5 dry) to pale brown (10YR 6/3 moist) loamy sand or sand; massive, loose, noncalcareous, graded mixture largely fine sand to fine gravel with a little silt and clay; many prominent coarse brown and yellowish brown mottles; gradual smooth lower 1565 D boundary.

35+ inches. Not sampled for laboratory study. Pale brown sand and fine gravel; mottled and stained with iron, saturated, water table at 40 inches.

	SOIL	SURVEY	LABORA	TORY	Mandan, N	Dak.	— 1 <del>127 27 27 27</del> 14 words 62 comp	
	SOIL	TYPEWe	ann Lit loam	LO	CATION.	Hall Co	unty, Nebrask	<u> </u>
	SOIL /	NOS.	<b>8</b> 53 <b>N</b> ebr-40	-6-(1-5)	LAB.	NOS.	1586-1590	
1	***************************************	1187.9	PART	nourmounum ICLE SIZE [	MOITLEBISTRE	(is mm.) (ner	cent) 207	1
<u>-</u>	<u> </u>							
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Soil type: Wann silt loam Soil No.: \$53Nebr=40-6-(1-5)

Location: One-Tourth mile north of SW corner Sec. 36, TION, Killy, Hall County, Nebraska.

Topographic position: Nearly level Platte River bottom land.

Relief: Slight.

Drainage: Imperfectly drained; water table at 4 feet or less and probably fluctuates between 30 and 50 inches.

Use: Cultivated.

Described by: B. H. Williams and Donald C. Yost.

Mandan Lab. No.

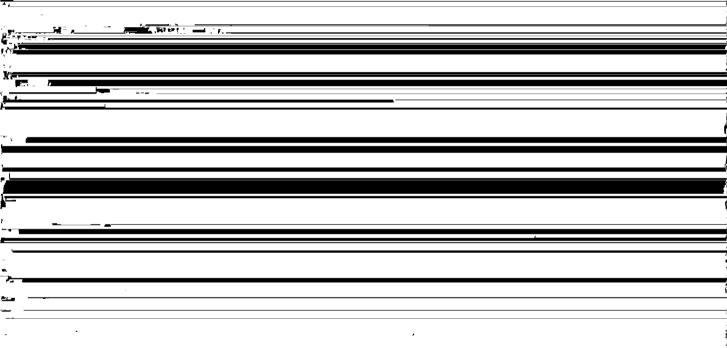
1589

Horizon 0-9 inches. Gray (10YR 5.5/1 dry) to very dark gray or dark gray (10YR 3.5/1 moist) silt loam; strong fine granular; slightly hard, dry; friable, moist; violent effervescence, pH 8.7 (Soiltex); 1586 Αlp abrupt smooth lower boundary.

9-14 inches. Gray (10YR 5.5/1 dry) to very dark gray (10YR 3.5/1 moist) silt loam; strong fine granular; slightly hard, dry; friable, moist; many fine and very fine pores and root channels; violent effervescence, pH 8.5; clear smooth lower boundary. 1587 A12

1588 AC 14-19 inches. Light brownish gray (logr 6/2 dry) to dark grayish brown (logr 4/2 moist) fine sandy loam; few faint fine yellowish brown mottles; strong fine granular; soft, dry; friable, moist; weak effervescence, pH 8.0; clear smooth lower boundary.

Cl 19-22 inches. Light brownish gray (10YR 6/2.5 dry) to dark grayish brown (10YR 4.5/2 moist) fine sandy loam; few faint fine brown mottles and stains; weak coarse subangular blocky separating to moderate medium and fine granular or crumb; soft, dry; friable, moist; noncalcareous; clear smooth lame kayadaayu



many distinct fine and coarse dark brown mottles and stains; massive; soft, dry; very friable, moist; noncalcareous, pH 7.0.

28-30 inches. Not sampled. Transition from C≥ to D horizon.

D 30+ inches. Not sampled. Many soft brown iron concretions and coarse brown mottles and stains above a depth of 4 feet; water table at 46-48 inches.

SOIL TYPE Wood River silt loam

SOIL NO.

S50Nebr-40-2-(1-9)

						_	~ ~ <u>~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ </u>	L NO.		NG D1 - TO		71		
_	l		1Bla		PARTIC	LE SIZE D	ISTRIBUTIO	N (in m	ım.) (p	er cent) 34	A1			
LABORATORY NUMBER	DEPTH IN INCHES	HORIZON	VERY COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURAL	
	""""		2·1	1.05		_		0.05-0.002	< 0.002	0.02-0.002	02-002		CLASS	
283	0-6	Alp	_	0.4	0.6	1.1	16.3	63.0	18.6	15.9	64.1	_	sil	
284	6-10	Alz	_	0.2	0.5	0.9	11.8	68.4	18.2	20.6	60.2	_	sil	
285	10-13	A2	_	0.2	0.5	1.1	14.1	68.6	15.5	21.2	62.2	_	sil	
286	13-21	B21	_	0.2	0.4	0.6	7.7	56.3	34.8	18.1	46.3	_	sicl	
287	21-28	B22	-	_	0.3	0.4	6.i	51.0	42.2	18.6	38.7	_	sic	
288	28-30	B31sa	-	-	0.2	0.3	6.3	51.4	41.8	19.0	38.9	_	sic	
289	30-38	B32	0.2	0.2	0.2	0.4	9.6	54.6	34.8	20.9	43.5	_	sicl	
290	38-53	Çī.	0.5	0.2	0.1	0.4	11.0	60.0	27.8	23.9	47.2	-	sicl	
291	53-60	C2	2.7	0.9	0.4	0.5	9.4	63.8	22.3	25.8	47.7	-	sicl	
		pH		ORG	ANIC MAT	TER	8A2	ELECTRICAL			Mois	TURE TEN	SIONS	
		<u> </u>	_	-		, <u></u>	1	CONDUC-	CaCO3	GYPSUM		(per cent)	4 <b>B</b> 2	
	SATURATED	1:5	1:10	ORGANIC	x		SALT (BUREAU	EC x 10 3	equivalent	me /100g	1/10	1/3	15	
	PASTE			UNITEDO	NITROGEN	C/N	CUP)	MILLIMHOS PER CM	per cent	SOIL.	ATMOS	ATMOS	, ATMOS	
283	8clb 6.8	8Cla 7-3	8Cla 7.4	6Ala 1.47	_	<u> </u>		8Ala_	6Ela	6Fla			Q ).	
203 284	7.1	7.6	7.7	1.20			_	0.9	tr tr	-			8.4 7.8	
285	7.3	7.9	8.0	0.90				0.7		_			6.4	
286	7.3	8.3	8.5	0.52			-	1.0	tr tr	-			16.9	
287	8.6	9.0	9,2	0.35			-	1.2	tr	-			22.1	
288	7.7	8.2	8.4	0.24			0.37	4.5	3	2			20.7	
289	8.6	9.2	9.4	0.16			~. 3\	1.3	2	-			18.6	
290	7.7	8.9	9.2	0.09			_	1.4	lī	_			15.2	
291	7.8	8.9	9.1	0.07			-	1.0	8	-			12.3	
	5 <b>Δ</b> 1a	5Bla	CATI	ONT C	 5Blb	5D2		DATIS	DATION E	TRACT SOL	unie 8 <b>4</b>	7	8 <b>A</b>	
	5 <del>Ala</del>	EXTRAC							KAHUN E	CIRACI SUL	UBLE OF		PER CENT	
	EXCHANGE	6 <b>N2</b> b	602b	6P2a		ABLE	6Pla	•					MOISTURE	
	CAPACITY	Ca	Mg	Na.	. к	SODIUM Percentage	Na	К	CO 3	HCO3	CI	\$0 <sub>4</sub>	AT	
	NHD <sub>4</sub> Ac m	Hliequivalent			*	ESP	<b>←</b>		illiequivat	nts per lite	r	->	SATURATION	
283	17.9	11.9	3.8	0.8	2.3	5	2.1	3.0					43.1	
284	16.2	12.5	3.1	0.8	1.4	5	2.4	5.3					41.3	
285	13.1	9.3	2.7	1.1	1.6	.9	3.7	4.7					38.1	
286	24.9			4.2	3.2	17	9.6	8.8					58.2	
287	32.0			4.8	4.4	15	7.7	5.4					92.0	
288	32.4			2.6	3.8	8	32.5	7.5					77.1	
289	30.2			4.4	4.2	15	10.6	3.2					79.2	
290	27.5			2.4	4.1	9	9.5	3.2					56.8	
291	23.7			1.4	3.4	ь	4.6	1.3					47.4	
											AGR-	SCS BELTSVILL	MD. 2682 J	UNE

Soil type: Wood River silt loam Soil No.: S50Nebr-40-2-(1-9)

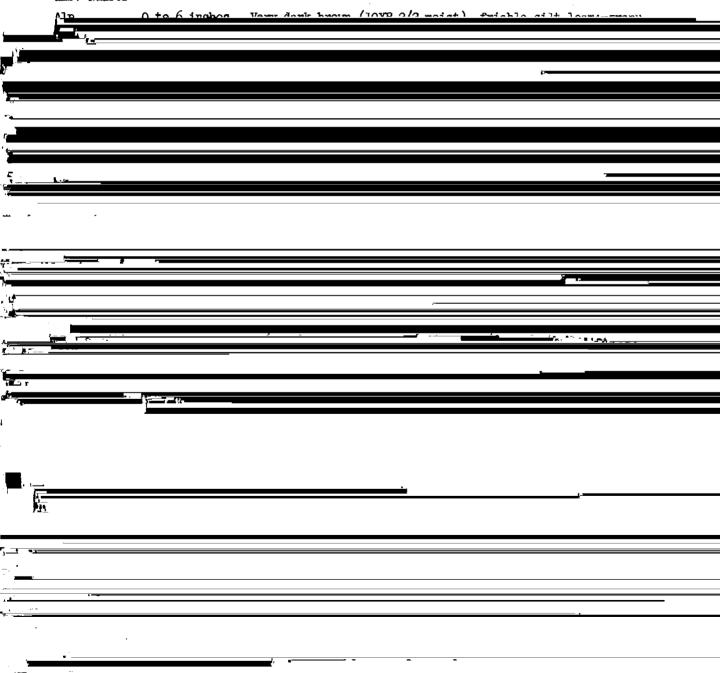
Location: 1/4 mile north of southwest section corner, northwest quarter of southwest

quarter Sec. 19, TION, R12W, Hall County, Nebraska.

Topographic position: Terrace along Platte River.

Drainage: Good, surface and internal. Land use: Irrigated corn in 1950. Described by: B. H. Williams. Date: July 7, 1950.

Horizon and Mandan Lab. Number



## SOIL TYPE Wood River silt loam

Mandan, North Dakota

SOIL NO. **S51Nebr-40-6-(1-6)** 

			lBla		PARTIC	LE SIZE D	ISTRIBUTIO	N (ınım	ım,) (p	er cent) 3/	Al.			
LABORATORY NUMBER	DEPTH IN INCHES	HORIZON	VERY COARSE SAND 2-1	COARSE SAND 1.0.5	MEDIUM SAND 0.5 - 0.25	SAND	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY	0.02-0.002	0.2-	2A2 > 2 (<19mm)	TEXTURAL CLASS	
911 912 913 914 915 916	0-11 11-16 16-23 23-27 27-42 42-60	Al A2 B2 B3 BCa C1	0.1 0.2 - 0.1 0.1 1.4	0.2 0.4 0.2 0.1 0.1	0.3 0.6 0.4 0.2 0.2 0.4	1.7 7.1 1.0 0.5 0.6 1.0	15.2 14.2 10.2 9.3 13.1 14.2	63.2 61.6 46.2 48.0 51.3 55.1	19.3 15.9 42.0 41.8 34.6 27.1	18.8 20.5 15.5 17.2 20.2 22.3	60.6 59.0 41.5 40.4 44.6 47.6	- - - 3a	sil sic sic sicl sicl- sil	
_		pH		ORG	ANIC MAT	TER	8A2	ELECTRICAL CONDUC-	CaCO3	GYPSUM	MOI	I Sture ten	L Sions	
	SATURATED PASTE 8C1b	1:5 8Cla	1:10 8Cla	organic carbon 6Ala	* NITROGEN	C/N	SALT (BUREAU CUR).	TIVITY EC x 10 3 MILLIMHOS PER CM BALS	equivalent per cent 6ELsa	me./100g SOIL 6Fla	1/10 ATMOS.	(per cent) 1/3 ATMOS.	15 ATMOS. 4182	
	5.8 6.3 7.5 8.0 7.8 7.8	6.3 7.4 8.3 8.7 7.9 8.2	6.7 7.5 8.6 9.0 8.1 8.5	2.32 1.19 0.70 0.39 0.20 0.12			- - 0.22 0.38 0.36	0.6 0.7 1.9 3.4 8.0 7.5	tr tr tr tr 2	- - - 153 6			11.1 7.4 21.8 22.4 20.6 16.2	
	catala	5Bla	CATTON	 S	5B1b	5 <b>10</b> 2		SATU	RATION E	(TRACT SOI	.uble 8 <b>.a</b>	1	8 <b>A</b>	
	EXCHANGE CAPACITY	EXTRAC Ca 6 N2b pilliequivalent	Mg 602b	Na 6P2a.	Ж	EXCHANGE- ABLE SODIUM PERCENTAGE ESP	6Pla Na	6Q1а к	CO <sub>3</sub>	HCO <sub>3</sub>	CI	SO <sub>4</sub>	PER CENT MOISTURE AT SATURATION	
	19.2 14.2 29.2 32.9 26.0 25.7	9.4 6.0 8.4 10.4	3.6 3.0 10.3 14.5	0.2 0.8 5.8 7.5 4.5 4.0	1.6 1.7 4.1 4.8 3.5 3.5	1 6 20 23 17 16	1.3 4.8 17.0 28.7 67.0 65.0	0.9 0.4 1.2 1.5 4.2 4.2					51.2 39.4 79.2 113.4 75.6 64.5	
											AGR	des Bestsvill	x, MD 2692 3	UKE 1953

Soil type: Wood River silt loam S51Nebr-40-6-(1-6) Soil No.:

Location: 500 feet east and 300 feet north of SW corner, Sec. 22, TllN, Rall, Hall County, Nebraska.

Vegetation: Native pasture; grama, western wheat grass and buffalo grass dominant

Parent material: Loess.

Physiographic position: Nearly level flat in very gently undulating terrace plain,

Topography: Nearly flat. Slope: Less than one percent. Erosion: None or slight.

Drainage: Slow. Moisture: Moist. Stoniness: Free.

Root distribution: Good. Described by: B. H. Williams.

Date: October 8, 1951. Mandan

Iab. No. Horizon

0-11 inches. Silt loam; dark gray (10YR 4/1 dry) to very dark brown (10YR 2/2 moist) friable, 911 AJ. medium granular silt loam.

912 A2 11-16 inches. Silt loam; gray (10YR 5/1 dry) to very dark gray (10YR 3/1 moist); weak prismatic silt loam; crushes easily to medium crumb or soft granular mass. The primary structure aggregates

are heavily coated with gray leached silt.

16-23 inches. Silty clay; grayish brown (10YR 5/2 dry) to very dark brown (10YR 2/2 moist) grading to olive brown or dark olive brown in the lower part. The upper part of this layer has strongly 913 **B2** developed columnar-prismatic structure with heavy costing of shiny nearly black organic colloids on the surface of the columns. The lower 3 inches of the columns are less well defined and become blocky where they grade with the next layer below. The column tops are only slightly rounded, are coated with a 1/4-inch degrading, partly leached, slightly lighter colored layer, and sharply contact the A2 above. The columns are very hard when dry, very firm moist and plastic when wet.

They merge gradually with the layer below.

914 23-27 inches. Silty clay; light brownish gray (2.5Y 6/2 dry) to dark grayish brown (2.5Y 4/2 **B**3 moist). Medium blocky; plastic, wet; firm, moist; hard, dry; changes rather abruptly to the next

## SOIL SURVEY LABORATORY

## SOIL TYPE Wood River silt loam

Mandan, North Dakota

SOIL NO. **S51Nebr-40-8-(1-8)** 

			1Bla		PARTIC	LE SIZE D	ISTRIBUTIO	N (in m	m.) (p	er cent) 3	AJ.		1 '	
LABORATORY NUMBER	DEPTH IN INCHES	HORIZON	VERY COARSE SAND	COARSE	MEDIUM	FINE SAND	VERY FINE SAND	ŞILŢ	CLAY		0.2-	2A2	TEXTURAL CLASS	
			2-1	1.05				0.05-0.002	<0 002	0.02-0.002		(1900)	CEASS	
925	0-6	Alp	0.1	0.2	0.6	1.6	19.3	60.7	17.5	16.3	64.7	_	sil	
926	6-11	Alž	0.1	0.2	0.5	1.7	20.5	60.1	16.9	15.7	66.0	_	ail	
927	11-13	A2	0.1	0.2	0.5	1.4	17.7	65.7	14.4	19.1	65.2	-	sil	
928	13-18	B2	0.1	0.2	0.3	1.0	12.5	49.7	36.3	15.5	47.2			
929	18-27	B3	0.1	0.2			11.6		30.3			-	sicl	
				ì	0.5	1.0		49.0	37.6	17.4	43.7		sicl	
930	27-31	Bea-es	0.1	0.2	0.6	1.1	13.4	51.3	33.3	21.2	44.1	-	sicl	
931	31-51	CJ.	0.1	0.3	0.6	1.8	18.1	54+3	24.8	22.2	51.1	-	sil	
932	51-60	CK2	0.2	0.4	0.5	1.5	17.4	60.3	19.7	24.4	54.0	2a.	sil	
		ρH		OPG	ANIC MA	TED	8az	ELECTRICAL			MOI	STURE TEN	SIONS	
-		<b>y</b> 11		-		1	EST. % SALT	CONDUC-	LaCO3	GYPSUM	111010	(per cent)		
	SATURATED	1.5	1:10	ORGANIC	*		1	EC x 10 3	equivalent	me /100g	1/10	1/3	15	
	PASTE	1.2	1:10	CARBON	NITROGEN	C/N	(BUREAU	MILLIMHOS	per cent	SQIL	ATMOS.	ATMOS	ATMOS.	
	8с1ъ	8cla	8cla	6Ala			COP.	PER CM SALa	6Ela	6Fla			4B2	
	6.6	7.3	7-3	1.48		~	_	0.7	tr	_			8.2	
	6.5	7.2	7.4	1.32			_	0.6	tr	-			8.3	
	7.0	7.9	8.2	0.92			_	0.7	tr	_			6.8	
	7.4	8.5	8.7	0.76				0.9	tr	_			19.0	
	8.0	9.6	9.2	0.44			-	1.8		_				
	7.8		8.0				^ ^7		12				21.5	
		7.9		0.20			0.27	5.2	3	74			18.9	
	8.0	8.8	9.1	0.10			0.21	3.1	0	-			14.7	
	7.9	9.3	9-5	0.10			0.20	3.1	2	-			10.3	
	5Ala CATION	5Bla	CATION	S	5 <b>B</b> 1b	5122		SATU	RATION E	<u>i</u> Xtract soi	UBLE 87	37 	8A	
		EXTRAC	PABLE	EXCHAN	GEABLE		6Pla					1	PER CENT	
	EXCHANGE	Ca	Mg	Na .	] K.	ABLE		K	co <sub>3</sub>				MOISTURE	
	CAPACITY	ca 6N2b	60°2ъ	612a	<b>6</b> 926	SODIUM Percentage	Na	"	103	HCO3	CI	SO 4	AT	
	NHi₁OAo	illiequivalent	s per 100g	3011	<u> </u>	ESP	←	' n	hilliequival	ents per lite	i ir		SATURATION	
	16.0				7.6			A 1:					1.7 0	
	1	9.5	3.3	0.3	1.6	2	1.3	0.4					41.8	
	15.8	9.1	3.4	0.5	1.6	3	1.7	0.4					41.6	
	12.8	6.6	3.3	1.2	1.5	9	4.8	0.1					38.0	
	26.2	10.5	30.0	4.2	2.9	16	8.0	0.1					60.7	
	27.8			4.4	3.2	16	14.1	0.6					82.2	
	26.3			3-3	2.8	12	33.0	2.4	ŀ				73.0	
	25.2	11.6	10.6	5.5	2.9	22	27.6	1.2					55.7	
	23.2	'		4.9	2.7	51	27.6	1,2					50.i	
	a. 1	argely	calcal	reous 4	oncre	Lione:								
	~. '			,										
											AGR	 -\$C# BELYSVILL	 45, HO 2692   	UNE I

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Soil type: Wood River silt loam
Soil No.: S51Nebr-40-8-(1-8)
Location: 100 feet north and 50 feet west of SE corner, Sec. 32, Tl2N, Rllw, Hall County, Nebraska.
Vegetation: Trrigated corn, apparent yield about 100 bushels per acre.
Parent material: Loess.
Physiographic position: Terrace (stream slope).
Topography: Undulating plain.
Slope: One percent.
Erosion: None to slight.
Drainage: Medium good.
Moisture: Moist.
Stoniness: None.
Root distribution: Good.
Described by: B. H. Williams.
Date: October 9, 1951.
Mandan
Lab. No.
          Horizon
                     0-6 inches. Grayish brown (10YR 5/2 dry) to very dark brown (10YR 2/2 moist) silt loam; fine
925
           Alm
                     granular, soft, friable.
926
           A12
                     6-11 inches. Same as above except medium blocky-fine granular structure.
                     11-13 inches. Gray (10YR 5/1 dry) to very dark gray (10YR 3/1 moist) silt loam; medium blocky with nearly white coating along the structure planes and light streaks through the blocks. Rests abruptly on layer below.
           A2
 927
                     13-18 inches. Dark grayish brown (10YR 4/2 dry) to very dark grayish brown (10YR 3/2 moist) prismatic blocky silty clay; the prisms are coated with very dark brown (10YR 2/2 moist) colloidal
 928
           R2
                     organic matter and have a glazed sheen; very hard, dry; stiff plastic moist; sticky when wet.
                     18-27 inches. Grayish brown (2.5Y 5/2 dry) to dark grayish brown (2.5Y 4/2 moist) medium
 929
           В3
                     blocky, heavy silty clay loam or silty clay. Moderately friable, moist; moderately hard, dry;
                     plastic when wet.
                     27-31 inches. Pale yellow (2.5% 7/3 dry) to light clive brown (2.5% 5/3 moist) silty clay loam;
 930
                     weak blocky structure; abundant salt and lime accumulation; friable at wide moisture range.
931
           C1
                     31-51 inches. Pale yellow (2.5Y 7/4 dry) to light olive brown (2.5Y 4.5/4 moist) massive friable
                     silt loam; no effervescence with dilute HCl, except on occasional fine spot or streak.
           C2
                     51-60 inches. Same as above, except a few more lime spots and a few large hard concretions.
 932
           C3
                     60-96 inches. Color as above; massive; calcareous; a few small, brown and strong brown mottlings.
           C4
                     96-120 inches. Little or no change from above except more pronounced mottlings, including some
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Note: The C horizons at this location have bright yellowish color, whereas the Wood River (profile S51Nebr-40-6) has dull chroma within the clive or gray range and is more strongly mottled.

## SOIL TYPE Wood River silt loam

Mandan, North Dakota

SOIL NO. **S51Nebr-40-10-(1-8)** 

		ſ ,	lBla		PARTIC	LE SIZE D	ISTRIBUTIO	N (in m	ım.) (p	er cent)	BAl			_
ABORATORY NUMBER	DEPTH IN INCHES	HORIZON	VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5 - 0.25	SAND	VERY FINE SAND 0.10 · 0 05		CLAY	0.02-0.002	0.2-	2A2 > 2 (<19mm)	TEXTURAL CLASS	
				- 5.5		0.20 - 0.15	0.10 0 00		_	-	0.02	- T-Strain)		_
941	0-9	LA.	0.1	0.2	0.6	1.3	19.3	58,6	19.9	16.9	61.8	-	sil	
942	9-14	A2	-	0.3	0.7	3.1	18.3	58.0	19.6	17.3	59.7	-	sil	
943	14-21	B21	0.1	0.2	0.5	1.1	10.5	52.0	35.6	16.6	46.3	~-	sicl	
<del>944</del>	21-32	R22	-	0.2	0.6	2.7	5.3	58.0	33.2	21.3	43.6	-	sicl	
945	32-36	Cleacs	0.1	0.3	1.4	4.2	18.5	51.2	24.3	13.0	57.7	-	sil	
946	36-44	C2	-	0.1	0.3	0.5	10.6	49.2	39 - 3	25.9	34.2		sicl	
947	44-54	C2	0.3	0.3	0.3	0.8	5.8	64.5	28.0	31.8	38.7	**	sicl	
948	54-60	C3	0.2	0.2	0.5	1.4	19.1	56.9	21.7	14.7	62.0	la	sil	
		pH .		ORG	ANIC MAT	TER	EST. X	ELECTRICAL CONDUC-	CaCO3	GYPSUM	MOIS	STURE TEN:	SIONS	_
	SATURATED PASTE	1:5	1:10	% ORGANIC CARBON	* NITROGEN	C/N	SALT (BUREAU	TIVITY EC x 10 3 MILLIMHOS	equivalent	me./100g	1/10 ATMOS.	(per cent) 1/3	15 ATMOS.	
	8017	8cla	8 <b>Cla</b>	6Ala	.,,, NOULI	,	CUP,	BA1a	per cent	OF L	ATMUS.	ATMOS.	41MUS. 41B2	_
	6.5	7.0	7.2	1.57			- ;	0.8	tr	-			6.7	
	6.9	7.9	7.9	1.09			-	0.8	tr	_			8.6	
	7.3	8.2	8.3	0.83			-	0.8	tr	-			19.0	
	8.1	9.0	9.2	0.42			-	2.0	1	-			18.8	
	7.9	8.0	8.1	0.29			0.36	6.0	3	29			15.4	
	7.8	8.8	9.2	0.26			0.22	5.3	2	_			14.2	
	8.0	9.0	9.1	0.34			0.25	4.5	2	_			18.3	
	8.0	9.1	9.3	0.18			-	4.0	1	-			12.6	
	caffolia.	5Bla	CAT		5в1ъ	502		SATU	ration e	i Xtract soi	UBLE 8A	1	8A PER CENT	
	EXCHANGE	EXTRAC			SEABLE	EXCHANGE- ABLE	6Pla	6Qla					MOISTURE	
		ca   610215	Мg 602ъ	Na 6P2a	692a	SODIUM	Na	K	co3	нсо	CI	SO <sub>4</sub>	AT	
	CAPACITY	ONZO			V≪20.	PERCENTAGE ESP			 	 ents per lite	ļ	'	SATURATION	
	<b>1</b>	†			<del>                                     </del>		- 0		1,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , , , , , , , , , , , , , , , , , ,	i	<b>—</b>	١	
	16.6	10.0	3.1	0.4	1.9	2	2.8	1.5					41.6	
	15.7	8.6	4.3	1.2	1.7	8	5.9	0.4					41.1	
	26.6	12.0	8.8	3.0	3.5	11	6.5	0.4					57.6	
	27.0		9.3	3.6	4.1	13	16.3	1.5					75.0	
	23.5			3.5	3.9	15	40.0	4.5					58.2	
	21.7			3.7	3.6	17	37.6	4.0					50.2	
	23.8			4.3	4.1	18	37.2	3.3					55.4	
	21.9			4.0	3.8	18	32.0	2.9					49 <b>.1</b>	
	a. L	rgely	alcar	ous c	ncret	lons.					•			
											AGR	SCE-BELTEVILL	2, Mb zss2 J	UNE

Soil type: Wood River silt loam Soil No.: S51Nebr-40-10-(1-8)

Location: 1250 feet east and 100 feet north of SW corner, Sec. 32, Tl2N, RllW, Hall County, Nebraska.

Vegetation: Cultivated oat stubble.

Parent material: Loess.

Physiographic position: Terrace. Topography: Gently undulating plain.

Slope: Less than 1 percent. Erosion: None or slight.

Drainage: Slow. Moisture: Moist.

Described by: B. H. Williams.

Date: October 9, 1951.

Mandan Lab. No. Horizon

941 Al 0-9 inches. Grayish brown (10YR 5/2 dry) to very dark brown (10YR 2/2 moist) silt loam; friable; soft granular.

942 A2 9-14 inches. Gray (10YR 5/1 dry) to very dark gray (10YR 3/1 moist) silt loam (broken surface of structure aggregates); medium to coarse blocky; light gray silt coating on outer surface of the blocks; vesicular; friable. Fairly abrupt break to the next horizon.

943 B21 14-21 inches. Grayish brown (10YR 5/2 dry) to very dark brown, broken surface, (10YR 2/3 moist) heavy silty clay losm (10YR 3/3 crushed) and (10YR 2/2 on the surface of the aggregates); coarse prismatic primary and medium blocky secondary structure; moderately friable moist; moderately bard dry; moderately plastic wet.

944 B22 21-32 inches. Grayish brown (2.5Y 5.5/2 dry) to dark grayish brown (2.5Y 4/2 moist) silty clay loam; blocky; friable moist; moderately hard dry.

945 Clca-cs 32-36 inches. Light brownish gray (2.5Y 6/2 dry) to dark grayish brown (2.5Y 4/2 moist) heavy silt loam or silty clay loam; massive; friable; high in lime and other salts.

946 C2 36-44 inches. Color as above; silt losm; massive; friable; calcareous, including streaks and spots of segregated lime.

947 C2 44-54 inches. Grayish brown (2.57 5/2 dry) to dark grayish brown (2.57 3.5/2 moist) silt loam; massive; friable; calcareous, including segregated lime mainly in the form of soft concretions. This is an incipient buried soil.

948 C3 54-60 inches. Light brownish gray (2.5Y 6.5/2 dry) to dark grayish brown (2.5Y 4/2 moist) silt loam; massive; friable; calcareous; some segregated lime.

SCS 421 10-64

SOIL Nos. S60Mebr-55-1 LOCATION Lancaster County, Nebraska

SOIL SURVEY LABORATORY Lincoln, Nebraska

\_ LAB. Nos. 14255-14262

December 1964

		1Bla						Size clas	s and parti	de diamete	er (mm)	RAI						
	·		Total					Sand		Şı						Çoar	se fragme	mts
				l	V		l		l., "		l					2A2	l -	ſ
Depth	Horizon	Sand	Silt	Clay	Very coarse	Coarse	Medium	Fine	Very fine		Int. III	Int. 🎞				<b>⇒</b> 2	2 - 19	19-
(In )		(2-0 05)	(0 05- 0 002)	( <b>&lt;</b> 0 002)	(2-1)	(1-0.5)	(0 5-0 25)	(0 25-0 1)	(0.1-0 05)	0 05-0 02	(0.02- 0.002)	(0 2-0.02)	(2~0 1)				. Po	t. of
		_		<u>'</u>			t of << 2 i				0.002,					Pct		76mm
0-7	Ap	3.8	68.3	27.9	-	0.2a	0.3a	0.5a	2.8	40.9	27.4	43.9	1.0			-	-	
7-11	A3	3.6	65.5	30.9	0.la	0.2a	0.3a	0.6a	2.40	36.6	28.9	39.3	1,2			_	<u>,-</u>	
11-16	B21	2.1	46.6	51.3	0.la	0.la	O.la	0.2a	1.6ъ	23.0	23.6	24.7	0.5			-	`-	
16-28	B22	2.0	52.0	46.0	0.la	0.la	-	0.2a	1.66	24.8		26.5	0.4			-	-	
28-33	ВЗса	3.5	55.6	40.9	0.60	0.6a	0.24	0.4a	1.7e	26.0	29.6	27.9	1.8			tr.	tr.	
33-44	Cca.	3.4	62.3	34.3	0.2c	0.24	0.24	0.44	2.4e	31.0	31.3	33.6	1.0			tr.	tr.	
44-52	Cl	3.0	65.5	31.5	-	0.1a	0.2a	0.40	2.3	31.7	33.8	34.2	0.7			-	-	
52-60	C2	3.0	65.8	31.2	_	0.la	0.1a	0.45	2.4	34.3	31.5	36.9	0.6			tr.	tr.	
		L .		<u></u>														
																		<u> </u>
	6Ala	6Bla	ŀ		6Elc	601a		Bulk density		4101		ater conte		482	401		рH	LDan
Depth	Organic	Nitrogen	C/N		Carbonate	-	4Ala	4Alc		Exten- sibil-	434	4 <b>B</b> 3	4Blb 1/3-		1/3- to			8C1
(ln.)	carbon				as CaCO <sub>3</sub>	Ext.	Field-	20_0_			Field-	20_0-	Bar	Bar	15-Bar			(1:1
	<u>£</u>							30-cm.	Oven-		State	JU-UIL.						
	Pct	Pct			Pct.		State g/cc	01-4		in per porizon	Pct	Pct,	Pieces Pct.		in per borkon		1	1
_ ~		_		<del>                                     </del>	rut.	Pet.	R/cc	g/cc	g/cc	ME-12011	FEL	FCT,	22.5	Pet. 12.6	PETEROD		<b>-</b>	5.
0-7	1.53	0.126				0.7	1.47	2 26	3 3.7-	Α 11	7.2	26,8	23.2	13:9	0.5		1	1 2.5
7-11 11-16	1.09	0.095	13			0.7	1.84g	1.36	1.47g 1.86g	0.52	8.5	31.2	29.3	22.9	0.4		1	5. 6.
16-28	0.87	0.068		1	<u> </u>		1.88	1.42	1.92g		9.0	28.2	29.7	20.8	1.6		-	7.
	0.59	0.052	111		2	0.7	1.84	1.40			8.2	28.3	30.3	19.6	0.8		1	7.
28-33 33-44	0.28	1			1	0.6	1.58	1.36_	1.85g 1.63g		10.6	31.1	29.0	18.4	1.5		1	7.
44-52	0.15				tr.	0.8	1.59	1.36	1.61g		6.6	32.1	29.3	17.3	1.3			7.
52-60	0.16				tr.	0.8	1.52	1.37	1.59g		15.0	32.6	29.8	16.9	1.4			7.
<i></i>				-		-				******								Ė
	6N2b	Extractab 602h	le bases 5	Bla   692a	5B1a	оща	Cat. Exc	h.Oap. 5Ala						•	813		Base sat	
Depth			1111			Exct.	Sum										Sum	"
(In )	Ca	Mg	Na	к	Sum	Acid-	Cat-	NH), OAc							Ca/Med		Cat-	NH)
						ity	ions										ions Pct.	C15
0-7					meq/100 g	9,8	25.4	19.6							2.6		61	8
	30.0	Ъ 1	ו הס	0.5				1.7.0			I							
7,,31	10.9	4.1	0.1	0.5				20.6							2.3			
7-11 11-16	12.3	5.3	0.3	0.4	18.3	8.1	26.4	20.6							2.3		69 87	10
11-16	12.3 23.1	5.3 11.2	0.3	0.4	18.3 36.3	8.1 5.4	26.4 41.7	33.6							2.3 2.1 2.1		69	8
11-16 16-28	12.3	5.3	0.3 1.2 1.7	0.4	18.3	8.1	26.4	33.6 31.9							2,1		69 87	10
11-16 16-28 28-33	12.3 23.1	5.3 11.2	0.3	0.4	18.3 36.3	8.1 5.4	26.4 41.7	33.6 31.9							2,1		69 87	10
11-16 16-28 28-33 33-14	12.3 23.1	5.3 11.2	0.3 1.2 1.7 1.9	0.4 0.8 0.7 0.8	18.3 36.3	8.1 5.4	26.4 41.7	33.6							2,1		69 87	10
11-16 16-28 28-33 33-44 44-52	12.3 23.1	5.3 11.2	0.3 1.2 1.7 1.9 2.0	0.4 0.8 0.7 0.8 0.9	18.3 36.3	8.1 5.4	26.4 41.7	33.6 31.9 29.8 28.2							2,1		69 87	10
11-16 16-28 28-33 33-44 44-52	12.3 23.1	5.3 11.2	0.3 1.2 1.7 1.9 2.0 2.1	0.4 0.8 0.7 0.8 0.9	18.3 36.3	8.1 5.4	26.4 41.7	33.6 31.9 29.8 28.2 25.9							2,1		69 87	10
11-16 16-28 28-33	12.3 23.1	5.3 11.2 10.8	0.3 1.2 1.7 1.9 2.0 2.1 2.1	0.4 0.8 0.7 0.8 0.9	18.3 36.3	8.1 5.4 2.8	26.4 41.7 38.5	33.6 31.9 29.8 28.2 25.9 25.9							2,1		69 87	10
11-16 16-28 28-33 33-14 44-52 52-60	12.3 23.1 22.5	5.3 11.2 10.8	0.3 1.2 1.7 1.9 2.0 2.1 2.1	0.4 0.8 0.7 0.8 0.9	18.3 36.3	8.1 5.4 2.8	26.4 41.7 38.5	33.6 31.9 29.8 28.2 25.9 25.9							2,1		69 87	10
11-16 16-28 28-33 33-14 44-52 52-60	12.3 23.1 22.5	5.3 11.2 10.8	0.3 1.2 1.7 1.9 2.0 2.1 2.1	0.4 0.8 0.7 0.8 0.9	18.3 36.3	8.1 5.4 2.8	26.4 41.7 38.5 38.5	33.6 31.9 29.8 28.2 25.9 25.9 25.9	odules	-					2,1		69 87	10
11-16 16-28 28-33 33-14 44-52 52-60	12.3 23.1 22.5 Ratios	5.3 11.2 10.8 to Cla	0.3 1.2 1.7 1.9 2.0 2.1 2.1 y 8m	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	8.1 5.4 2.8	26.4 41.7 38.5 > 50% I 5-25% F > 50% O	33.6 31.9 29.8 28.2 25.9 25.9 25.9	odules te nod	ules.					2,1		69 87	10
11-16 16-28 28-33 33-14 44-52 52-60	12.3 23.1 22.5	5.3 11.2 10.8 to Cla	0.3 1.2 1.7 1.9 2.0 2.1 2.1	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	8.1 5.4 2.8 a. > 5 c. > 5 d. > 5	26.4 41.7 38.5 > 50% F 50% C > 50% C	33.6 31.9 29.8 28.2 25.9 25.9 25.9	odules te nod te nod	ules. ules.	5-25%	Fe-Ma	nodule	5.	2,1		69 87	10
11-16 16-28 28-33 31-52 52-60	12.3 23.1 22.5 Ratios	5.3 11.2 10.8 to Cla	0.3 1.2 1.7 1.99 2.0 2.1 2.1 2.1 y 8m 15-Bar Water	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	a. 25 c. 25 d. 25	26.4 41.7 38.5 38.5 > 50% F 5.25% F 5.0% 0	33.6 31.9 29.8 28.2 25.9 25.9 25.9 26-Mn n e-Mn n arbona	odules te nod te nod te nod	ules. ules. ules.	5-25%	Fe-Ma	nodule	5.	2,1		69 87	10
11-16 16-28 28-33 33-14 44-52 52-60	12.3 23.1 22.5 Ratios	5.3 11.2 10.8 to Cla	0.3 1.2 1.7 1.9 2.0 2.1 2.1 y 8m 15-Bar Water	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	a. 2.8 b. 5.4 c. 2.8	26.4 41.7 38.5 > 50% F 5-25% F 50% C 5-25% C 1.1 Kg/m	33.6 31.9 29.8 28.2 25.9 25.9 25.9 25.9 25.9 25.9 25.9	odules te nod te nod te nod	ules. ules. ules.	5-25%	Fe- <b>м</b> а	nodule	6.	2,1		69 87	10
11-16 16-28 28-33 33-34 44-52 52-60	12.3 23.1 22.5 Ratios	5.3 11.2 10.8 to Cla Ext. Iron .025 .023	0.3 1.2 1.7 1.9 2.0 2.1 2.1 2.1 45 .45	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	a. 2.8 b. 5.4 c. 2.8	26.4 41.7 38.5 38.5 > 50% F 5.25% F 5.0% 0	33.6 31.9 29.8 28.2 25.9 25.9 25.9 25.9 25.9 25.9 25.9	odules te nod te nod te nod	ules. ules. ules.	5-25%	Pe-Ma	nodule	s.	2,1		69 87	10
11-16 16-28 28-33 33-14-52 52-60	12.3 23.1 22.5 Ratios	5.3 11.2 10.8 to Cla Ext. Iron .025 .023	0.3 1.2 1.7 1.9 2.0 2.1 2.1 2.1 45 45 45	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	a. 2.8 b. 5.4 c. 2.8	26.4 41.7 38.5 > 50% F 5-25% F 50% C 5-25% C 1.1 Kg/m	33.6 31.9 29.8 28.2 25.9 25.9 25.9 25.9 25.9 25.9 25.9	odules te nod te nod te nod	ules. ules. ules.	5-25%	Fe-Ma	nodule	5.	2,1		69 87	בו ער
11-16 16-28 28-33 33-34 44-52 52-60 Peopth ((n)) 0-7 7-11 11-16 16-28	12.3 23.1 22.5 Ratios	5.3 11.2 10.8 to Class Ext. Iron .025 .023 .016	0.3 1.2 1.7 1.9 2.0 2.1 2.1 2.1 y 8D1 15-Bar Water .45 .45	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	a. 2.8 b. 5.4 c. 2.8	26.4 41.7 38.5 > 50% F 5-25% F 50% C 5-25% C 1.1 Kg/m	33.6 31.9 29.8 28.2 25.9 25.9 25.9 25.9 26.8 4 n n 4 n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n n	odules te nod te nod te nod	ules. ules. ules.	5-25%	Ре- <b>м</b> а	nodule	5.	2,1		69 87	בו ער
11-16 16-28 28-33 33-11 44-52 52-60 0-7 7-11 11-16 28-33	12.3 23.1 22.5 Ratios NHi, OAC CEC .70 .67 .69 .73	5.3 11.2 10.8 to Cla Ext. Iron .025 .023 .016	0.3 1.2 1.7 2.0 2.1 2.1 2.1 y8nl 15-Bar Water .45 .45 .45	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	a. 2.8 b. 5.4 c. 2.8	26.4 41.7 38.5 > 50% F 5-25% F 50% C 5-25% C 1.1 Kg/m	33.6 31.9 29.8 28.2 25.9 25.9 25.9 25.9 26.8 4 n n 4 n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n n	odules te nod te nod te nod	ules. ules. ules.	5-25%	Pe-Ma	nodule	5.	2,1		69 87	10
11-16 16-28 28-33 33-31 44-52 52-60 0-7 7-11-16 16-28 28-33 33-44	12.3 23.1 22.5 Ratios NHi, OAC CEC .67 .65 .69 .73 .82	5.3 11.2 10.8 to Cla Ext. Iron .025 .023 .016 .015 .020	0.3 1.2 1.7 2.0 2.1 2.1 2.1 y 8 m 45 .45 .45 .45 .45 .45	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	a. 2.8 b. 5.4 d. 2.8	26.4 41.7 38.5 > 50% F 5-25% F 50% C 5-25% C 1.1 Kg/m	33.6 31.9 29.8 28.2 25.9 25.9 25.9 25.9 26.8 4 n n 4 n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n n	odules te nod te nod te nod	ules. ules. ules.	5-25%	Pe-Ma	nodule	5.	2,1		69 87	10
11-16 16-28 28-33 33-14 44-52 52-60 0-7 7-11 11-16 16-28 28-33 31-4-52	12.3 23.1 22.5 Ratios NHi, OAC CEC .70 .67 .69 .73 .82	5.3 11.2 10.8 to Cla Ext. Iron .025 .016 .015 .015 .020	0.3 1.2 1.7 2.0 2.1 2.1 2.1 2.1 45 .45 .45 .48 .55	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	a. 2.8 b. 5.4 d. 2.8	26.4 41.7 38.5 > 50% F 5-25% F 50% C 5-25% C 1.1 Kg/m	33.6 31.9 29.8 28.2 25.9 25.9 25.9 25.9 26.8 4 n n 4 n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n n	odules te nod te nod te nod	ules. ules. ules.	5-25%	Fe-Ma	nodule	5.	2,1		69 87	10
11-16 16-28 28-33 33-11 44-52 52-60 0-7 7-11 11-16 16-28 28-33 33-44	12.3 23.1 22.5 Ratios NHi, OAC CEC .67 .65 .69 .73 .82	5.3 11.2 10.8 to Cla Ext. Iron .025 .023 .016 .015 .020	0.3 1.2 1.7 2.0 2.1 2.1 2.1 y 8 m 45 .45 .45 .45 .45 .45	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	a. 2.8 b. 5.4 d. 2.8	26.4 41.7 38.5 > 50% F 5-25% F 50% C 5-25% C 1.1 Kg/m	33.6 31.9 29.8 28.2 25.9 25.9 25.9 25.9 26.8 4 n n 4 n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n n	odules te nod te nod te nod	ules. ules. ules.	5-25%	Fe-Ma	nodule	5.	2,1		69 87	10
11-16 16-28 28-33 33-14 44-52 52-60 0-7 7-11 11-16 16-28 28-33 31-4-52	12.3 23.1 22.5 Ratios NHi, OAC CEC .70 .67 .69 .73 .82	5.3 11.2 10.8 to Cla Ext. Iron .025 .016 .015 .015 .020	0.3 1.2 1.7 2.0 2.1 2.1 2.1 2.1 45 .45 .45 .48 .55	0.4 0.8 0.7 0.8 0.9 0.9	18.3 36.3	a. 2.8 b. 5.4 d. 2.8	26.4 41.7 38.5 > 50% F 5-25% F 50% C 5-25% C 1.1 Kg/m	33.6 31.9 29.8 28.2 25.9 25.9 25.9 25.9 26.8 4 n n 4 n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n 4 n n n n	odules te nod te nod te nod	ules. ules. ules.	5-25%	Fe- <b>м</b> а	nodule	5.	2,1		69 87	10

Soil type: Wymore silty clay loam Soil No.: S60Nebr-55-1 Classification: Maximal Chernozem.

Ignation: 332 feet west and 225 feet south of the northeast corner of the southwest quarter Sec. 34, ISN. RSE.

Crop: Sorghum. Parent material: Peorian losss. Climate: Subhumid. Physiography: Nearly level loss upland. Relief: Subnormal. Slope: 1 percent. Aspect: Essentially level with 1 percent slope toward the northwest. Variable. Brosion: Permeability: Moderately slow. Drainage: Moderately well drained. Ground water: Deep. Moisture: Near field capacity. Root distribution: A few root channels were observed extending through the profile to the C horizon. Described by: Joseph M. Downs. LSL No. Horizon O to 7 inches. Very dark gray (LOYR 3/1 moist uncrushed) (LOYR 5/2 dry) silty clay loam, weak fine 14255 Aτ granular structure, friable, no effervescence; abrupt smooth lower boundary. 7 to 11 inches. Very dark brown (10YR 2/2 moist uncrushed) (10YR 3/2 moist crushed) (10YR 6/2 dry) 14256 A3 silty clay loam, moderate very fine subangular blocky structure, friable, no effervescence; abrupt smooth lower boundary; a very few fine brown mottles occur in the upper portion of this horizon. 11 to 16 inches. Very dark grayish brown (10YR 3/2 moist uncrushed) (2.5Y 4/2 moist crushed) (10YR 14257 1921 4/2 dry) silty clay, moderate fine subangular blocky breaking to very fine subangular blocky, common thin continuous clay films, firm, no effervescence, few fine medium hard dark brown to black concretions, few fine faint black and brown mottles; clear smooth lower boundary. 16 to 28 inches. Dark grayish brown (2.5Y 4/2 moist uncrushed) (10YR 6/2 dry) silty clay, moderate 14258 medium subangular blocky breaking to fine subangular blocky, common thin continuous clay films, firm, no effervescence, few fine medium hard dark brown to black concretions; abrupt wavy lower boundary. 14259 B3ca 28 to 33 inches. Dark grayish brown (2.5Y 4/2 moist uncrushed) (10YR 6/2 dry) silty clay, weak coarse subangular blocky, few discontinuous clay films, firm, common hard CaCO3 concretions, no effervescence in matrix material; clear wavy lower boundary. 33 to 44 inches. Olive gray (57 5/2 moist uncrushed) (10YR 7/2 dry) silty clay loam, many fine distinct mottles (10YR 4/3 moist), few distinct fine very dark brown to black mottles, massive, friable, common hard  $CaCO_3$  concretions, very weak effervescence in matrix material; gradual wavy lower bound-14260 ary. 44 to 52 inches. Olive gray (5Y 5/2 moist uncrushed) (10YR 7/2 dry) silty clay loam, many medium distinct mottles (10YR 4/3 moist), few distinct fine very dark brown to black mottles, massive, 14261 friable, no effervescence; smooth gradual lower boundary. 52 to 60 inches. Olive gray (5Y 5/2 moist uncrushed) (10YR 7/2 dry) silty clay loam, many medium distinct mottles (10YR 4/3 moist), massive, friable, no effervescence. 14262

SOIL Wymore silty clay loam SOIL Nos. 85

SOIL Nos. 261Nebr-55-1 LOCATION LAncaster County, Nebraska

SOIL SURVEY LABORATORY Lincoln, Nebraska

\_ LAB Nos. 14485-14492

December 1964

		Lille						Size clas	s and parti	cia diameti	er (mm) 3A	1					
			Total					Sand		Sı						se fragmo	ints
Depth	Horizon	Sand	Silt	Clay	Very	Coarse	Medium	Fine	Very fine		Int, III	lat. 🎞			2A2	2 - 19	19-
(in )		(2-0.05)	(0.05- 0.002)	( <b>≈</b> 0 002)	coarșe (2-1)	(1-0 5)	(0 5-0.25	(0.25–0 1)	(0.1-0 05)	0.050.02	(0 02-	(0.2-0.02)	(2–0 1)		- '		19
		-4	1 010027				of -< 2	mm	· ·		0.0027		_		Pct	<b>*</b>	76sum
0-7	App AD	5.8	59.9	34.3		0.2a	0.2a	0.4a	5.0	38.0	21.9	43.2	0.8		-	-	
7-11 11-18	A3 B21	3.6	48.1 46.8	48.3 50.1	0.la	_	0.1a	0.2a 0.1a	3.2 3.0	25.4 24.8	22.7 22.0	28.7 27.9	0.4 0.1		-	-	
18-25	B22	3.2	51.7	45.1	_	-	-	0.26	3.0	26.7	25.0	29.8	0.2		-	-	T
25-33	ВЗсв	4.2	62.5	33.3	0.6c	0.20	0.10	0.34	3.0e	31.8	30.7	35.0	1.2		tr.	tr.	
33-45 45-52	Cca.	4.7	57.3 64.1	38.0 32.8	0.8c	0.2c	0,10	0.34	3.3e 2.8e	28.3	29.0	31,8	1.4		tr.	tr.	⊢
52-60	α5 ατ	3.1 4.0	61.7	34.3	-	-	-	0.3d	3.7e	33-3 31-6	30.8 30.1	36.3 35.5	0.3		-	-	_
	6Ala	6Bla	 		681e	бола		Bulk densit			14	ater conte	nt 1				
			1			OCIE		DOIN CONSIL	<u> </u>			481				pH	80
Depth (In )	Organic carbon	Nitrogen	C/N		Carbonate as CaCO <sub>3</sub>	Ext. Iron as Fe						1/3- Bar Pieces	15- Bar				(1
	Pct	Pct	L		Pct,	Pet.	g/cc	g/cc	g/cc		Pet	Pct	Pct.				Ļ
0-7 7-11 11-18	1.98 1.24 0.93	0.164 0.086 0.076	12 14 12		_	0.7 1.0 0.8						24.6 33.4 34.0	13.0 19.8 21.6				5. 6.
18-25	0.79	0.070	11		=	0.8						32.9	20.1				7.
25-33	0.22				1	0.8						32.6	16.4				7.
33-45 45-52	0.34				tr.	0.8			_	-		33.2 34.8	18.4 15.5				7.
52-60	0.22				tr.	ō.š	<u> </u>					35.2	16.ó				7.
	6N2b	Extractat	de bases 5		5Bla	6Hla	Cet.Rec 5A3e	h.Cap. 5Ala						81/3		Base sat	uration 50
Depth (In )	Ça	Mg	Na	K	Sum	Ext. Acid-		NH <sub>L</sub> OAc						Ca/Mg		Sum Cat-	CE MET C
		1		l 	meq/100 g	ity	ions	 								ions Pet	Pct
0-7					19.7	11.2	30.9	23.4						2,4		64	84
7-11	13.3	5.5	0.2	0.7	<b>-7</b> -1			DA 1									
	19.1	10.2	1.0	0.9	31.2	9.3	40.5	32.1						1.9		77	97
11-18	19.1 21.2	10.2	1.0	0.9	31.2 35.5	9.3 5.8	41.3	33.3						1.8		77 86	107
11-18 18-25	19.1	10.2	1.0 1.5 1.8	0.9 0.9 0.9	31.2	9.3 5.8	40.5 41.3 37.2	33.3 32.0						1.9 1.8 1.9		77 86 92	97 107 107
11-18 18-25 25-33 33-45	19.1 21.2	10.2	1.0 1.5 1.8 2.7 2.2	0.9 0.9 0.9 0.9	31.2 35.5	9.3 5.8	41.3	33.3 32.0 27.1 28.7						1.8			107
11-18 18-25 25-33	19.1 21.2	10.2	1.0 1.5 1.8 2.7	0.9 0.9 0.9	31.2 35.5	9.3 5.8	41.3	33.3 32.0 27.1						1.8			107
11-18 18-25 25-33 33-45 45-52	19.1 21.2	10.8	1.0 1.5 1.8 2.7 2.2 2.6 2.7	0.9 0.9 0.9 0.9 0.9	31.2 35.5	9.3 5.8 3.0	41.3 37.2 > 50≸	33.3 32.0 27.1 28.7 25.8 26.8						1.8			107
11-18 18-25 25-33 33-45 45-52	19.1 21.2 20.7	10.2 11.9 10.8	1.0 1.5 1.8 2.7 2.2 2.6 2.7	0.9 0.9 0.9 0.9 0.9	31.2 35.5	9.3 5.8 3.0	41.9 37.2 > 50% 5-25% > 50% 5-25%	33.3 32.0 27.1 28.7 25.8 26.8	nodule ate no ate no	es. dules dules	5-25	5 <b>% Fo</b> -	Mn nodu	1.8			107
11-18 18-25 25-33 33-45-52 52-60 Depth (In.)	19.1 21.2 20.7 Ratios NH, OAC CEC	to C1  Ext.  10.20 .021	1.0 1.5 1.8 2.7 2.2 2.6 2.7 2.6 2.7 4 4 15-Par Water .38 .41	0.9 0.9 0.9 0.9 0.9	31.2 35.5	9.3 5.8 3.0	41.9 37.2 > 50% 5-25% > 50% 5-25%	33.3 32.0 27.1 28.7 25.8 26.8 Fe-Mn Carbon Carbon	nodule ate no ate no	es. dules dules	5-25	;% <b>F</b> o-)	Mn nodu	1.8			107
11-18 18-25 25-33 33-45 45-52 52-60 Depth (In.)	19.1 21.2 20.7 Ratios NH, OAC CEC. .68 .66	to C1  Ext.  Iron  .020 .021 .016	1.0 1.5 1.8 2.7 2.6 2.7 2.6 2.7 2.6 2.7 41 38 .41	0.9 0.9 0.9 0.9 0.9	31.2 35.5	9.3 5.8 3.0	41.9 37.2 > 50% 5-25% > 50% 5-25%	33.3 32.0 27.1 28.7 25.8 26.8 Fe-Mn Carbon Carbon	nodule ate no ate no	es. dules dules	5-25	;% Fo-)	Mn nodu	1.8			107
11-18 18-25 25-33 33-45 45-52 52-60 Depth (In.)	19.1 21.2 20.7 Ratios NH, OAC CEC	to C1  Ext.  10.20 .021	1.0 1.5 1.8 2.7 2.2 2.6 2.7 2.6 2.7 4 4 15-Par Water .38 .41	0.9 0.9 0.9 0.9 0.9	31.2 35.5	9.3 5.8 3.0	41.9 37.2 > 50% 5-25% > 50% 5-25%	33.3 32.0 27.1 28.7 25.8 26.8 Fe-Mn Carbon Carbon	nodule ate no ate no	es. dules dules	5-25	5 <b>% F</b> e-i	Ma nodu	1.8			107
11-18 18-25 25-33 33-45 45-52 52-60 Depth (In.) 0-7 7-11 11-18 18-25 25-33 33-45	19.1 21.2 20.7 Ratios NH, OAC CEC .68 .66 .66 .71 .81	to C1  Ext. Iron  .020 .021 .016 .028	1.0 1.5 1.8 2.7 2.2 2.6 2.7 2.6 2.7 38 41 .43 .44 .49	0.9 0.9 0.9 0.9 0.9	31.2 35.5	9.3 5.8 3.0	41.9 37.2 > 50% 5-25% > 50% 5-25%	33.3 32.0 27.1 28.7 25.8 26.8 Fe-Mn Carbon Carbon	nodule ate no ate no	es. dules dules	5-25	5% Fe-	Ma nodu	1.8			107
11-18 18-25 25-33 33-45 45-52 52-60 Depth (In.) 0-7 7-11 11-18 18-25 25-33	19.1 21.2 20.7 Ratios NEL OAC CEC	to C1  Ext. 1ron .020 .021 .016 .018	1.0 1.5 1.8 2.7 2.2 2.6 2.7 2.6 2.7 2.6 2.7 38 .41 .43 .44 .49	0.9 0.9 0.9 0.9 0.9	31.2 35.5	9.3 5.8 3.0	41.9 37.2 > 50% 5-25% > 50% 5-25%	33.3 32.0 27.1 28.7 25.8 26.8 Fe-Mn Carbon Carbon	nodule ate no ate no	es. dules dules	5-25	5 <b>% P</b> o−i	Mn nodu	1.8			107

Soil type: Wymore silty clay loam Soil No.: 861Nebr-55-1 Classification: Maximal Chernozem. Transfer to Calle man and his feat north of the contheest corner for 20 M7N DRR Langueter County No. Crop: Alfalfa. Parent material: Peorian loess. Climate: Subhumid. Physiography: Narrow, nearly level losss upland. Relief: Subnormal. Slope: 1 percent. Brosion: Moderate. Permeability: Moderately slow. Drainage: Moderately well drained. Ground water: Deep. Moisture: Below field capacity. Root distribution: A few roots extending to the C2. Largest alfalfa roots from surface through B22. Land owner indicated no fertilizer was applied. Described by: Joseph M. Downs. IST. No. Horizon 14485 O to 7 inches. Silty clay loam (10YR 3/1) weak fine granular structure, friable, no effervescence; Αp abrupt smooth lower boundary. 14486 7 to 11 inches. Silty clay loam (10YR 2/2 uncrushed) (10YR 3/2 crushed) moderate very fine subangular blocky, friable, no effervescence; clear smooth lower boundary, few fine brown mottles occur in this horizon. 14487 11 to 18 inches. Silty clay (10YR 3/2 uncrushed) (2.5Y 4/2 crushed) moderate fine subangular blocky breaking to fine subangular blocky, common continuous thin clay films, firm, no effervescence, few brown mottles; gradual smooth lower boundary. 14488 18 to 25 inches. Silty clay (2.5% 4/2) moderate medium subangular blocky breaking to fine subangular blocky, common continuous thin clay films, firm, no effervescence, few fine medium hard dark brown concretions: abrupt wavy lower boundary.

B3ca 25 to 33 inches. Silty clay (2.5Y 4/2) weak coarse subangular blocky, few discontinuous clay films,

33 to 45 inches. Silty clay loam (2.5Y 5/2) many medium distinct mottles (10YR 5/3); brown color

is more distinct than in lower horizons, friable, very weak effervescence, common hard CaCO2 con-

45 to 52 inches. Silty clay loam (2.5Y 5/2) many medium distinct mottles (10YR 5/3), massive, friable, very weak effervescence, occasional small hard CaCO<sub>3</sub> concretions, occasional fine CaCO<sub>3</sub>

52 to 60 inches. Silty clay loam (2.5Y 5/2) many medium distinct mottles (10YR 5/3), massive, friable, very weak effervescence, occasional small hard CaCO<sub>3</sub> concretions, about equal amounts of 2.5Y 5/2 and 10YR 5/3 colors exist in the C horizon, other intermediate colors are present; brown

firm, common hard CaCO3 concretions, no effervescence; gradual wavy lower boundary.

coatings on broken clod faces; gradual smooth lower boundary

colors appear somewhat as horizontal streaks.

cretions, common CaCO3 coatings on broken clod surfaces; gradual smooth lower boundary.

14489

14490

14491

14492

SOIL TYPE Wymore silty clay loam

\_\_\_\_LOCATION Pavnee County, Nebraska

SOIL NOS. \$58Nebr-67-2-(1-9) LAB. NOS. 9139-9147

PEPTH INCHES	HORIZON	VERY			_	_			(		212	ţ
		COARSE SAND	COARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY	į		>2	TEXTURA CLASS
		2.1	1-0.5	0.5-0.25	0, 25-0, 10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	002-0 <b>00</b> 2		[
0-5	Alp	<0.1	0.1	0.2a	0.4a	1.3a	57.6	40.4	32.1	27.0	-	Bic/Bi
5-12	B1	<0.1	<0.1	O.la	0.2a	0.8a	51.5	47.4	25.4	27.0	-	sic
12-20	B21	<0.1	<0.1	0.la		0.6a	53.2	46.0	24.1	29.8	-	sic
20-28	<b>B22</b>	<0.1	<0.1	<0.1	<0.1	0.50	58.2	41.3	26.8	31.9	-	sic
28-37	B23	<0.1	<0.1	<0.1		0.50	62.6	36.9	28.1	35.0	_	sicl
37-46	С	<0.1	<0.1	<0.1	<0.1	0.5ъ	63.9	35.6	27.0	37.4	-	sicl
+6-50	DJ.	<0.1	<0.1	<0.1	<0.1	0.5ъ	65.5	34.0	24.6	41.4	-	sicl
50-54	D2	0.9c	2.6c	3.2a	4.7a		54.1	31.3	28.1	31.6	-	sicl
54-63	D3	1.0c	3.lc	3.6a			49.8	33.6	27.4	28.6	-	sicl
************	 	814Fe1/48117+5844	***************************************		***************		****************		2556141111111111		***************************************	
107A411	PH			MIC MA	TTER	6Cla	ELECTPI- CAL	6 <b>™</b> a		MOIST	URE TE	NSIONS 4B
8c1a			6Ala			Free	CONDUC-	CoCO <sub>3</sub>	CYPSUM			
	1:5	1:10	ORGANIC CARBON	NITRO-	C/N		EC 103	ecuiv-	me./100g. SCIL	1/10 ATMOS,	1/3 ATMOS.	15 ATMOS
	1,5	1:10			0		PER_CM	,	3012			•
1:1			%			%Fe203	BAla			%		
6.3			1.84	0.153	12.0	1.2	0.4				į	16.8
5.8			1,48	0.116			0.3				!	20.5
5.9			0.78	0.066	12	1.2	0.3			,	i	19.9
6.1			0.43	0.048	9	1.2	0.3					18.9
6.4			0.22			1.0	0.3		:			17.8
6.6			0.21			1.5	0.3	a	İ			17.5
6.7			0.20			2.0	0.3	ā				16.7
6.7			0.19			1.2	0.3	a	<b>.</b>			12.9
6.7			0.21			1.5	0.3	ā				14.1
5A16		EXTRAC	T	CATIONS			BAI BAI	EXT.	**************************************	4 <b>B</b> 4	441	
		602b	6HLa	6P2a	602a	SAT.	6Pla	6Qla	1 -	Field		MOISTU
CATION CHANGE APACITY	OMES	0020	ستبين	0,7 4,00		NHQ Ac			•	State	Vol.	AT SATU-
NH <sub>),</sub> Ac	Co .	Mg	н	Na	K	EXCH.	No	K	•	Water	Wt.	RATIO
111412		<del>mi</del> lliegulv	olents per	100g. soil	·	5C1	<b>←</b>	per li	ter>	%	E/cc.	- 3
20.0	02.0	5.8	6.6	<0.1	0.6	101	0.4	0.1	:			63.3
29.0	23.0		7.6	i	0.5		0.5	0.1	Í		ļ :	79.1
33.2	23.5 23.8	7.6 8.1	6.2	0.1		95	0.6	0.1		മര	1.40	82.0
31.7			4.6	0.2	0.7	103	0.6	0.1		27.2	1.40	82.3
31.3	<b>2</b> 2.6	7.7				99				alı o	1.50	75.8
28.9	21.6	7.0	3.3	0.3	0.6	102 102	0.8	0.1 <0.1	:	24.9	1.70	73.1
28.5 26.2	21.2	6.9	3.7	0.4	0.5		0.9	<u>:</u>				65.8
	20.4 16.0	6.3 4.6	2.5		0.5	105 98	1.0	<0.1 <0.1			į	51.2
21.6				0.3	0.3	126	1.0	<0.1 <0.1		21 0	1.49	
17.3	10.4	4.7	2.9	0.3	0.3	ᄯᅁ	1.0	20.1	1	. cl.7	1.47	70.3
. Co	mon si	nooth 1	Light	to dar!	brown	oner. (F a coner. coner.	(Fe?)	***************************************				

Soil Type: Wymore silty clay loam

Classification: Brunizem

Location: 300 feet south and 110 feet east of center of Sec. 10, TLN, RILE, about 1 mile west and 3 miles south

of Pawnee City, Pawnee County, Nebraska.
Date Sampled: September 11, 1958.
Collectors: R. Jordan, J. Elder, M. James.
Use: Cultivated (lespedeza 1958).

Climate: Average annual precipitation 31 inches; average annual temperature 53° F.

Parent Material: Loess.

Physiography: Loess-capped glacial upland.

Slope: 2 percent southwest. Soil No.: 558Nebr-67-2-(1-9)

Lincoln

Lab. No. Horizon

0-5 inches. Very dark brown (10YR 2/2 dry) to very dark brown (10YR 2/2 moist) silty clay losm; 9139 Alp moderate fine granular structure; slightly hard dry, friable, moist; noncalcareous; abrupt smooth lower boundary.

9140 **B**1 5-12 inches. Very dark grayish brown (10YR 3/2 dry) to very dark brown (10YR 2/2 moist) silty clay; moderate fine blocky structure; hard, dry, firm moist; noncalcareous; gradual smooth lower boundary.

9141 B21 12-20 inches. Grayish brown (lOYR 5/2 dry) to very dark grayish brown (lOYR 3/2 moist) silty clay; moderate medium and fine blocky structure; hard dry, firm moist; noncalcareous; gradual smooth lower boundary.

20-28 inches. Grayish brown (2.5Y 5/2 dry) to dark grayish brown (10YR 4/2 moist) silty clay, a CHEO R22 few fine faint yellowish brown mottles; moderate medium and fine blocky structure; hard dry, firm moist; noncalcareous; gradual smooth lower boundary.

9143 B23 28-37 inches. Light brownish gray (2.5Y 6/2 dry) to dark grayish brown (10YR 4/2 moist) silty clay loam; a few fine distinct yellowish brown and dark brown mottles; moderate medium blocky structure; hard dry, firm moist; noncalcareous; gradual smooth lower boundary.

9144 37-46 inches. Pale brown (10YR 6/3 dry) to dark grayish brown (2.5Y 4/2 moist) silty clay loam; C many medium distinct yellowish brown and dark brown mottles; weak medium prismatic structure; hard dry, firm moist; noncalcareous; gradual smooth lower boundary.

46-50 inches. Light brownish gray (2.5Y 6/2 dry) to grayish brown (2.5Y 5/2 moist) silty clay loam; weak medium subangular blocky structure; slightly hard dry, friable moist; noncalcareous; abrupt 9145 DΊ wavy lower boundary.

9146 DΘ 50-54 inches. Light brownish gray (10YR 6/2 dry) to dark brown (7.5YR 3/2 moist) silty clay loam: a few fine distinct dark reddish brown mottles; weak medium subangular blocky structure; slightly hard dry, friable moist; noncalcareous; clear smooth lower boundary.

9147 D3 54-63 inches. Light brownish gray (10YR 6/2 dry) to dark brown (7.5YR 3/2 moist) silty clay loam; common fine distinct dark reddish brown mottles; weak medium granular structure; slightly hard dry, friable moist; noncalcareous.

Note: The D horizons are part of a Planosol in Sangamon weathered material. Weathered till was encountered at  $6\frac{1}{2}$  feet. Horizons Alp, R22 and D3 were sampled for Bureau of Public Roads.

SOIL SURVEY	LABORATORY Lincoln, Nebr. April 1959							
SOIL TYPE Wymore LOCATION Paymee County, Nebraska								
SOIL NOS.	\$58Nebr-67-7-(1-8) LAB NOS 9177-9184							

,		lRla		PARTI	CLE SIZ	E DISTRIB	UTION (in	mm.) (pe	r cent)	3Al		,
DEPTH INCHES	HORIZON	VERY CCARSE SAND	CCARSE SAND	MEDIUM SAND	FINE SAND	VERY FINE SAND	SILT	CLAY			2A2 > 2	TEXTURA CLASS
	l	2.1	₹-0,5	0.5-0.25	<b>0</b> . 2 <b>5-0</b> , 10	0.10-0.05	0.05-0.002	< 0.002	0.2-0.02	002-0002		
0-5	Alp	<0.1	0.1a	0.28	0.3a	1.4a	63.2	34.8	41.4	23.4	_	sicl
5-9	Bl	<0.1	<0.1	0.la			56.4	42.6	30.2	27.0	-	sic
9-17	B21	<0.1	<0.1	0.16	:		52.4	46.8			-	sic
17-25	B22	<0.1	0.15			_	58.0	41.1	26.1	32.5		sic
25-32	B23	<0.1	0.16		0.16		59.3	39.9	27.9	32.0	-	sicl/s
32-40	B24	<0.1	0.15	0.11	0.1b	0.4a	61.7	37.6	32.2	30.0	-	sicl
40-53	C	<0.1	<0.1	<0.1	<0.1	0.6a	65.0	34.4	32.8	32.8	-	sicl
53-63	D	0.2	1.9	2.5	4.4	2.8	<b>58.6</b>	29.6	30.5	33.0	-	sicl
P(57534978454)4				INIC MA		6 <b>čla</b> .	ELECTRI-	6Ela	************		URE TE	
8¢la	, -PH		6Ala	+ + +	11.50	COLLO	CAL.				ONC. IL	4B
COLM						Free	TIVITY	CoCO <sub>3</sub>	CYPSUM me./100g.	1/10	1/3	15
	1:5	1:10	ORGANIC CARBON	GEN	C/N	Iron as	EC × 103 MILLIMHOS	alent	SOIL		ATMUS.	ATMOS
1:1			%	%		%Fe <sub>2</sub> 0 <sub>3</sub>	8AL	78		%	78	- %
5.6			2.09	0.163	12.8	1.0	0,3					14.9
			1.84		12.3	1.1	0.3		ľ	į		18.6
5.7			1.24		13.0	1.2	0.3					20.
5.9 5.1			0.63	0.060		1.4	0.3		•			19.6
5.3			0.38	0.000		1.4	0.3	Ī				18.6
6.6			0.24			1.1	0.3	a	į			18.2
6.8			0.15			0.5	0.3	a				16.9
6.9			0.20			1.2	0.4	م				12.8
5Ala	171000041-7741117	EXTRAC	TABLE	CATIONS	5B)a	BASE	BAL SATU	i RATION	EXTRAC	T SOL.		8
ATION	6 <b>N2</b> b	602b	6Hla	6 <b>P2</b> a	602a	SAT.	6Pla		[		ļ	MOISTUR
CHANGE PACITY	Co	Mg	н	No	ĸ	NH), Ac exch.	No	K	<u>.</u> }			SATU- RATIO
NH <sub>),</sub> Ac		millie quiv	olents per	100g. soil		5 <b>C</b> 1	<del></del>	milliequi	ivalents po	or liter —		%
26.6	17.2	4.7	9.8	0.1	0.8	86	0.4	0.2				56.6
31.7	21.3	6.5	9.0	0.1	0.6	90	0.4	0.1				68.0
34.0	23.8		7.4	0.2	0.7	94	0.6	0.1	ĺ	•		72.4
	23.4	7.3	6.2	0.2	0.6	98	0.6	0.1		İ		79.6
32.2			'	0.3	0.6	101	0.8	0.1	•	•		77.7
30.2	22.8	6.9	4.5							:	<b>†</b>	
30.2 29.1	22.8 23.1	6.9 6.9	3.3	0.4	ი.ა	106	0.9	0.1		į		77.5
30.2 29.1 27.2	22.8 23.1 21.8	6.9 6.9 6.1	3.3 2.9	0.4 0.5	0.6 0.5	106	1.2	<0.1	1			66.9
30.2 29.1 27.2	22.8 23.1	6.9 6.9 6.1	3.3	0.4	ი.ა		1.2			*** **********************************		
32.2 30.2 29.1 27.2 21.3	22.8 23.1 21.8	6.9 6.9 6.1	3.3 2.9	0.4 0.5	0.6 0.5	106	1.2	<0.1				66.9
30.2 29.1 27.2 21.3	22.8 23.1 21.8 17.3	6.9 6.9 6.1 4.4	3.3 2.9 3.2	0.4 0.5 0.5	0.6 0.5 0.3	106 106	1.2	<b>0.1</b> <b>0.1</b>				66.9
30.2 29.1 27.2 21.3	22.8 23.1 21.8 17.3	6.9 6.9 6.1 4.4	3.3 2.9 3.2	0.4 0.5 0.5	0.5 0.5 0.3	106 106	1.2	<0.1 <0.1 mer. (	Fe-Mn	)		66.9

Soil Type: Wymore silty clay losm

Classification: Brunizem

Location: 1170 feet west and 580 feet south of NE corner Sec. 1, TlN, RllE, about 1 mile east and 1 mile south

of Pawnee City, Pawnee County, Nebraska. Date Sampled: September 16, 1958.

Collectors: J. Allen, J. Elder, R. Greenawalt.

Use: Cultivated (stubble).

Climate: Average annual precipitation 31 inches; average annual temperature 53° F.

Parent Material: Loess.

Physiography: Loess-capped glacial till upland.

Slope: 4 percent southwest. Soil Mo.: S58Nebr-67-7-(1-8)

Lincoln

Lab.No. Horizon 0-5 inches. Dark gray (10YR 4/1 dry) to very dark brown (10YR 2/2 moist) silty clay loam; weak medium granular structure; slightly hard dry, friable moist; noncalcareous; abrupt smooth lower 9177 Alp

boundary.

9178 Bl 5-9 inches. Very dark grayish brown (10YR 3/2 dry) to very dark brown (10YR 2/2 moist) heavy silty clay loam; moderate very fine blocky structure with clay films on the aggregate faces; slightly hard dry, friable moist; noncalcareous; clear smooth lower boundary.

9-17 inches. Dark grayish brown (10YR 4/2 dry) to very dark grayish brown (10YR 3/2 moist) silty clay; moderate medium and fine blocky structure with clay films on the aggregate faces; hard dry, firm moist; noncalcareous; clear smooth lower boundary. 9179 R21

9180 **B22** 17-25 inches. Dark brown (10YR 4/3 dry) to dark grayish brown (10YR 4/2 moist) silty clay, a few fine faint dark yellowish brown mottles; moderate medium and fine blocky structure with clay films on the aggregate faces; hard dry, firm moist; noncalcareous; gradual smooth lower boundary.

9181 B23 25-32 inches. Brown (10YR 5/3 dry) to dark grayish brown (10YR 4/2 moist) silty clay; common fine faint dark yellowish brown mottles; moderate medium blocky structure with clay films on the aggregate faces; hard dry, firm moist; noncalcareous; clear smooth lower boundary.

32-40 inches. Mottles 50 percent grayish brown (2.5Y 5/2dry) to clive brown (2.5Y 4/4 moist), 50 percent light brownish gray (2.5Y 6/2 dry) to grayish brown (2.5Y 5/2 moist) heavy silty clay loam; 9182 B24 a few fine distinct yellowish brown mottles and common fine distinct reddish brown iron and manganese concretions; moderate medium and fine blocky structure with patchy clay films on the aggregate faces; slightly hard dry, friable moist; noncalcareous; clear smooth lower boundary.

40-53 inches. Light brownish gray (2.5Y 6/2 dry) to gray (5Y 5/1 moist) silty clay loam; weak medium and coarse blocky structure, a few small pipe-like iron concretions are present; slightly hard dry, friable moist; few scattered lime concretions; abrupt smooth lower boundary. 9183 C

9184 D 53-63 inches. Brown (10YR 5/3 dry) to dark brown (7.5YR 4/2 moist) silty clay loam; weak fine platy structure; soft dry, very friable moist; noncalcareous.

Note: There are common fine distinct dark reddish brown mottles and also many fine pores present in the "D" horizon. The contact zone between the C and D horizons consists of thin lenses of dark colored material, probably organic stainings, also concentrations of yellowish brown iron stains. Horizons Alp, B22 and D were sampled for the Bureau of Public Roads.